

A Cooperative Catalysis Approach to Intramolecular Hydroacylation

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Supporting Information

(82 Pages)

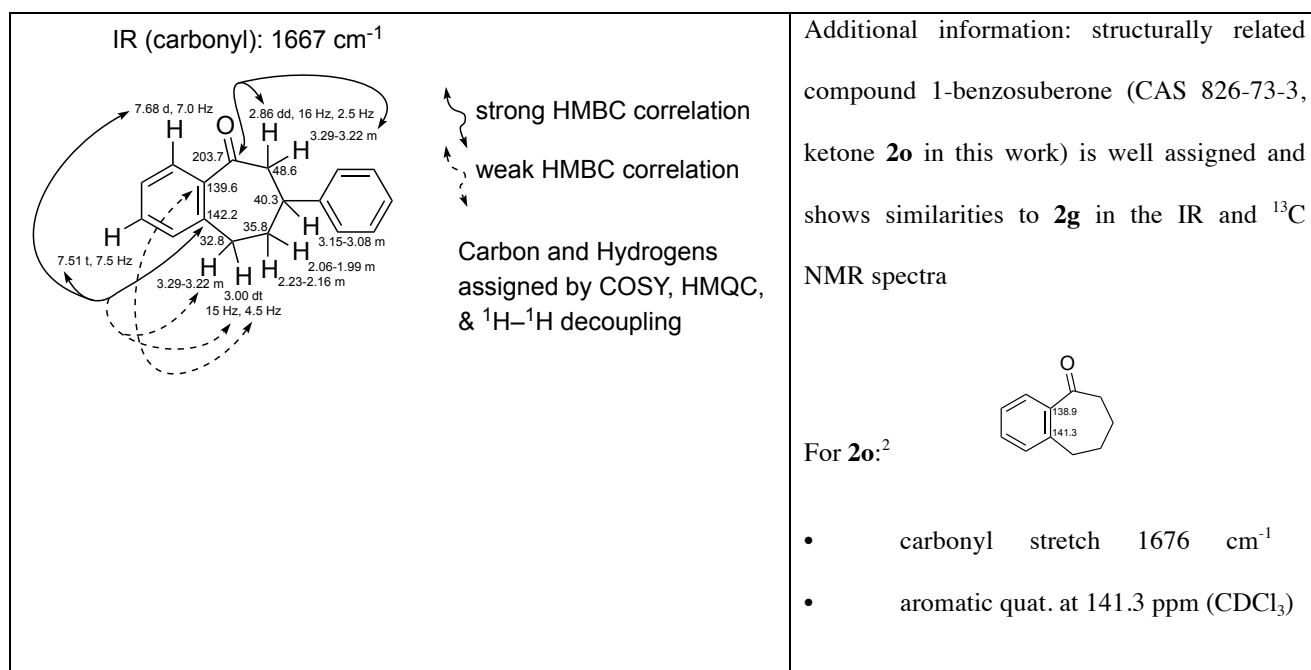
Section A contains an assignment diagram for compound **2g**. Page S2

Section B contains copies of NMR spectra for **1b–1n**, **1p**, **2a–2o**, **4**, and **5** in addition to copies of HPLC chromatograms for ($\pm$)-**2a** and (–)-**2a**

Pages S3–S82

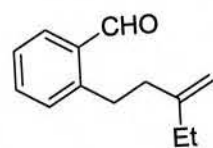
Our preparation of compound **2g** provided material that did not match data provided in the literature.¹ Infrared spectroscopy on our material showed a carbonyl stretch that was within 9 wavenumbers (cm^{-1}) of that observed in the spectrum of 1-benzosuberone. 2-D NMR, particularly HMBC crosspeaks observed according to the diagram below, are also supportive of our assignment. Key crosspeaks are below:

Figure S1: Assignment diagram and comparison data for **2g**

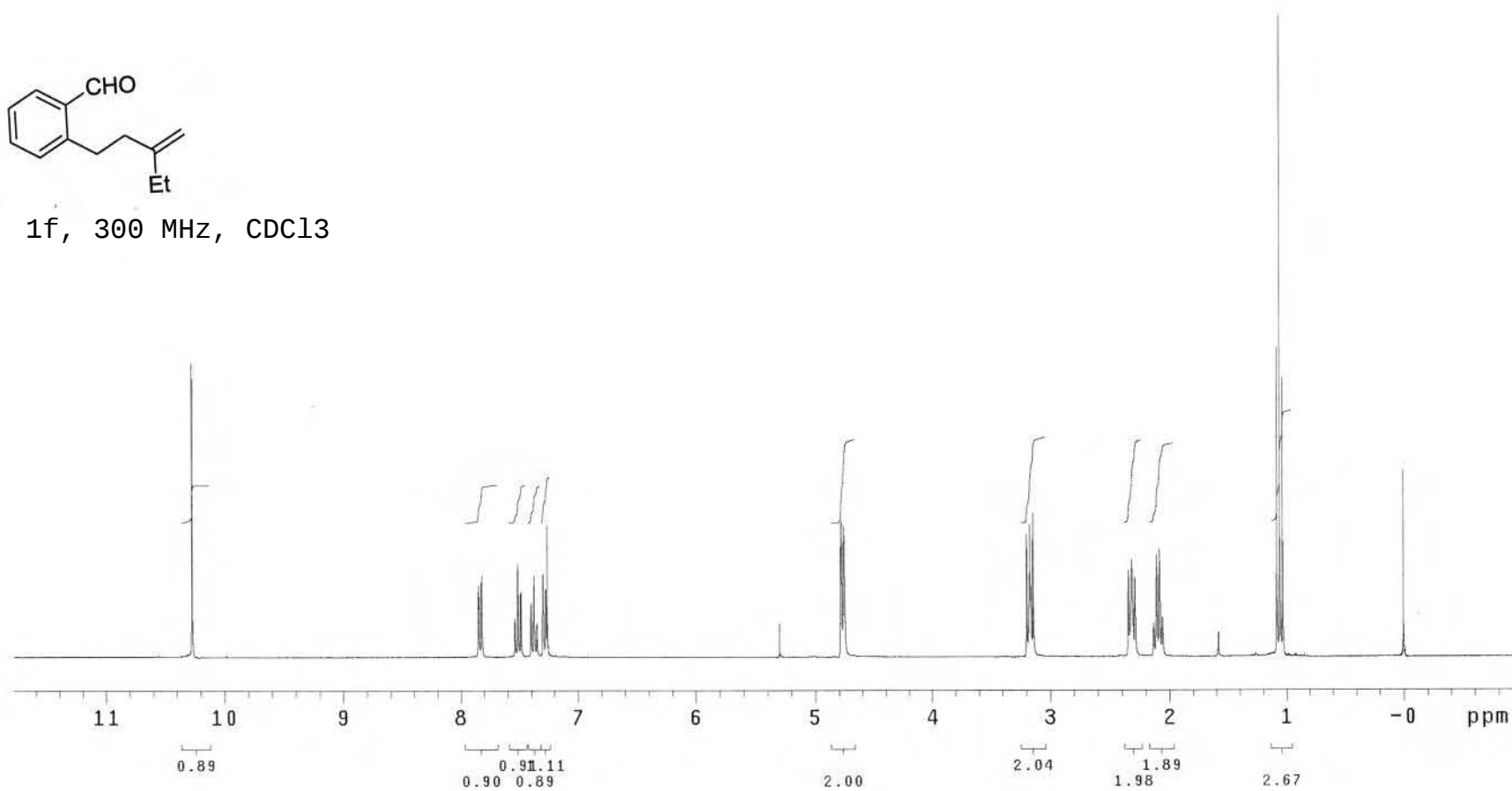


¹ Fillion, E.; Fishlock, D.; Wilsily, A.; Goll, J. M. *J. Org. Chem.* **2005**, *70*, 1316.

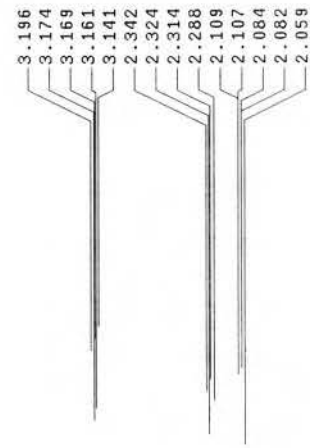
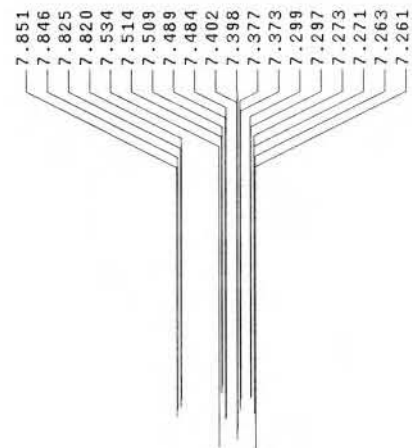
² Data was taken from the Spectral Database for Organic Compounds (SDBS), accessed on March 12, 2012.
http://riodb01.ibase.aist.go.jp/sdbs/cgi-bin/cre_index.cgi?lang=eng

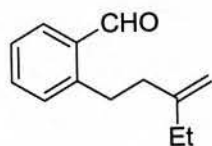


1f, 300 MHz, CDCl₃

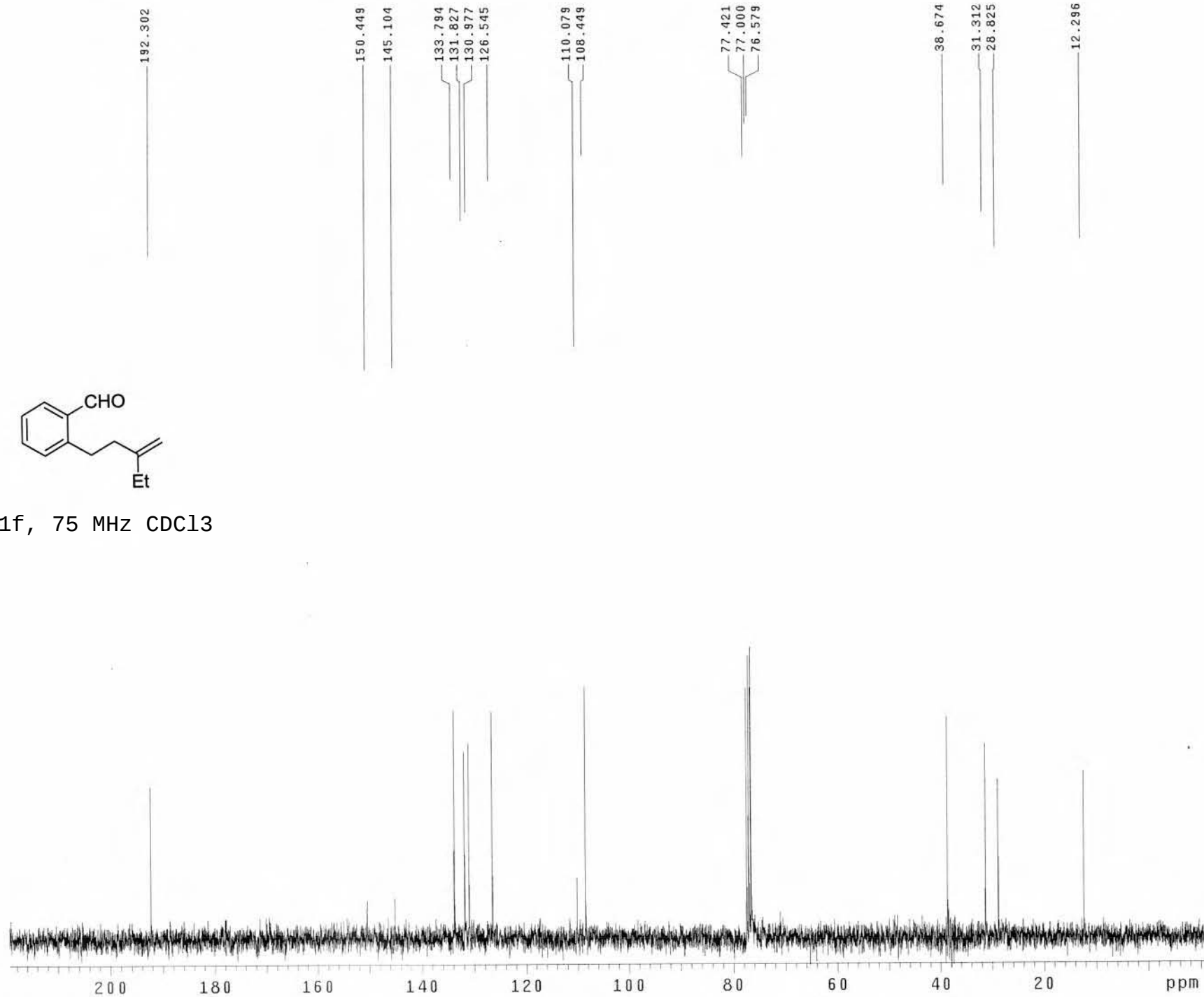


10.273

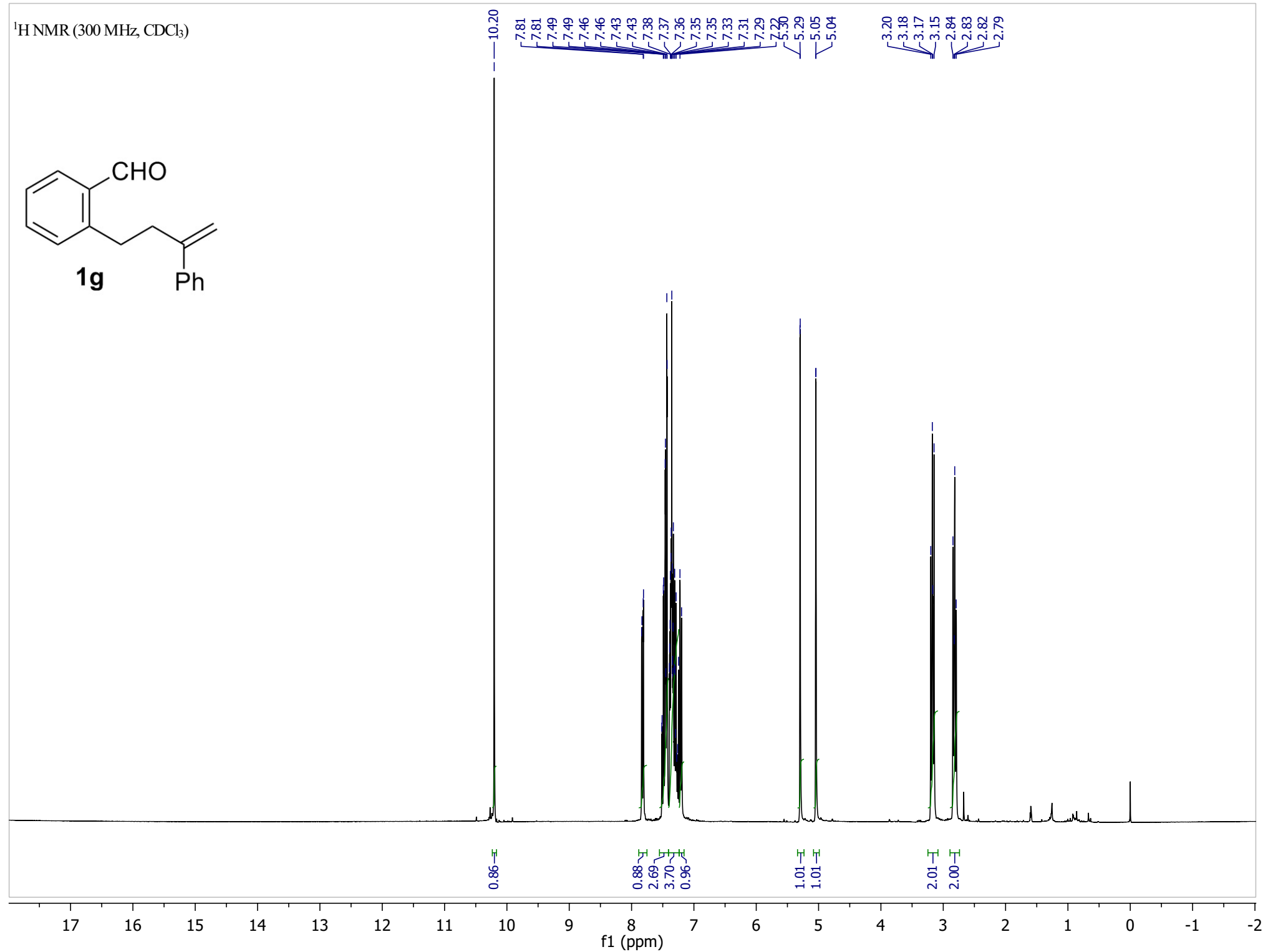
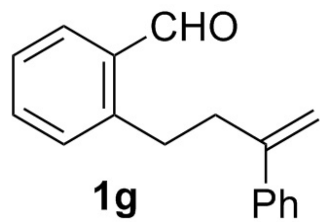




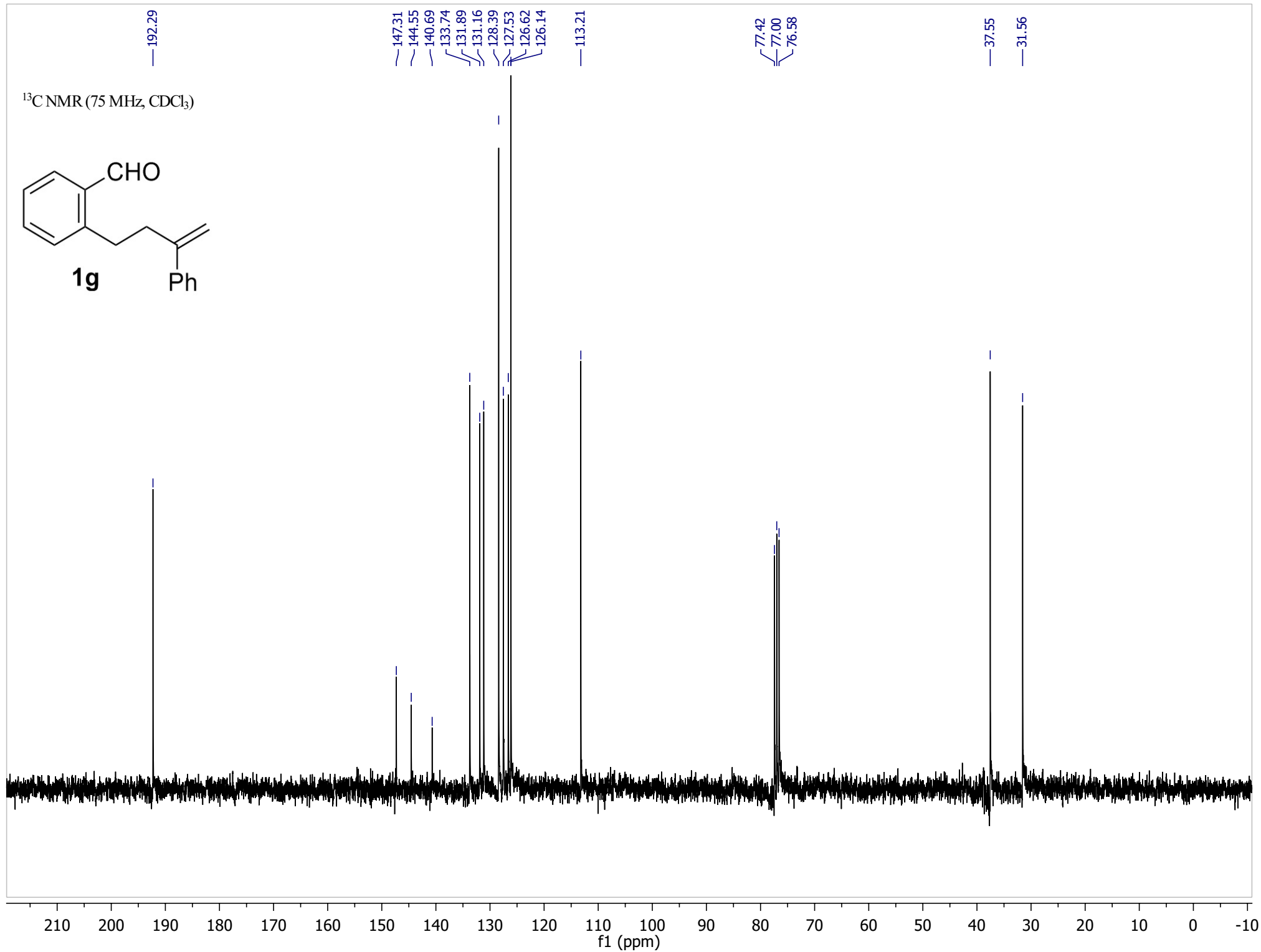
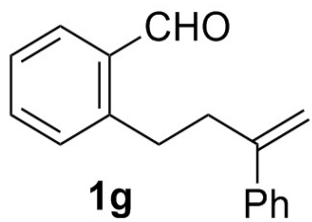
1f, 75 MHz CDCl₃

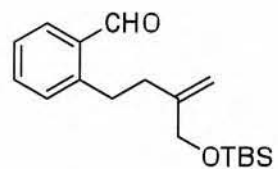


¹H NMR (300 MHz, CDCl₃)

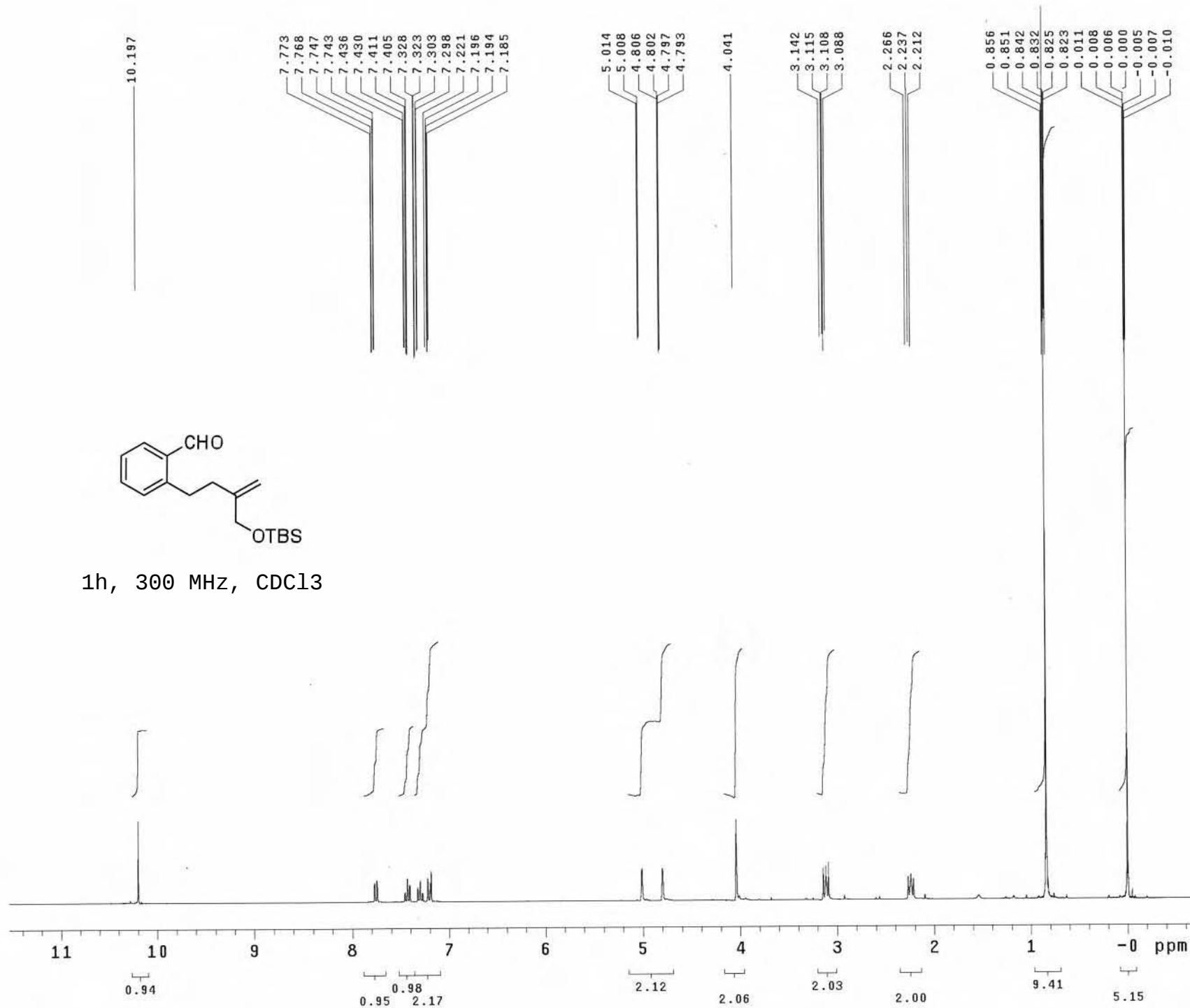


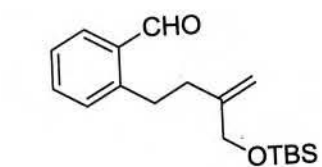
^{13}C NMR (75 MHz, CDCl_3)



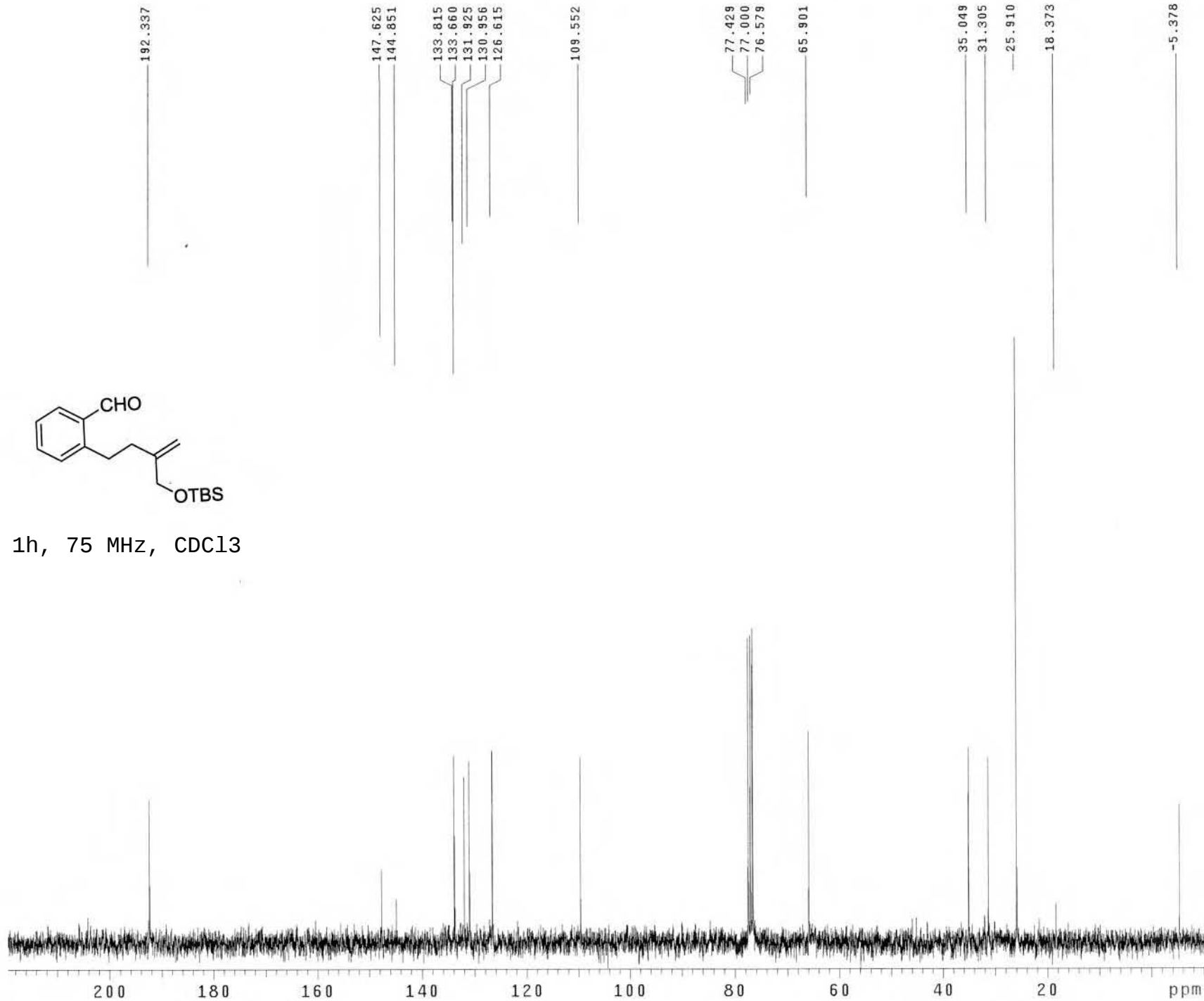


1h, 300 MHz, CDCl₃

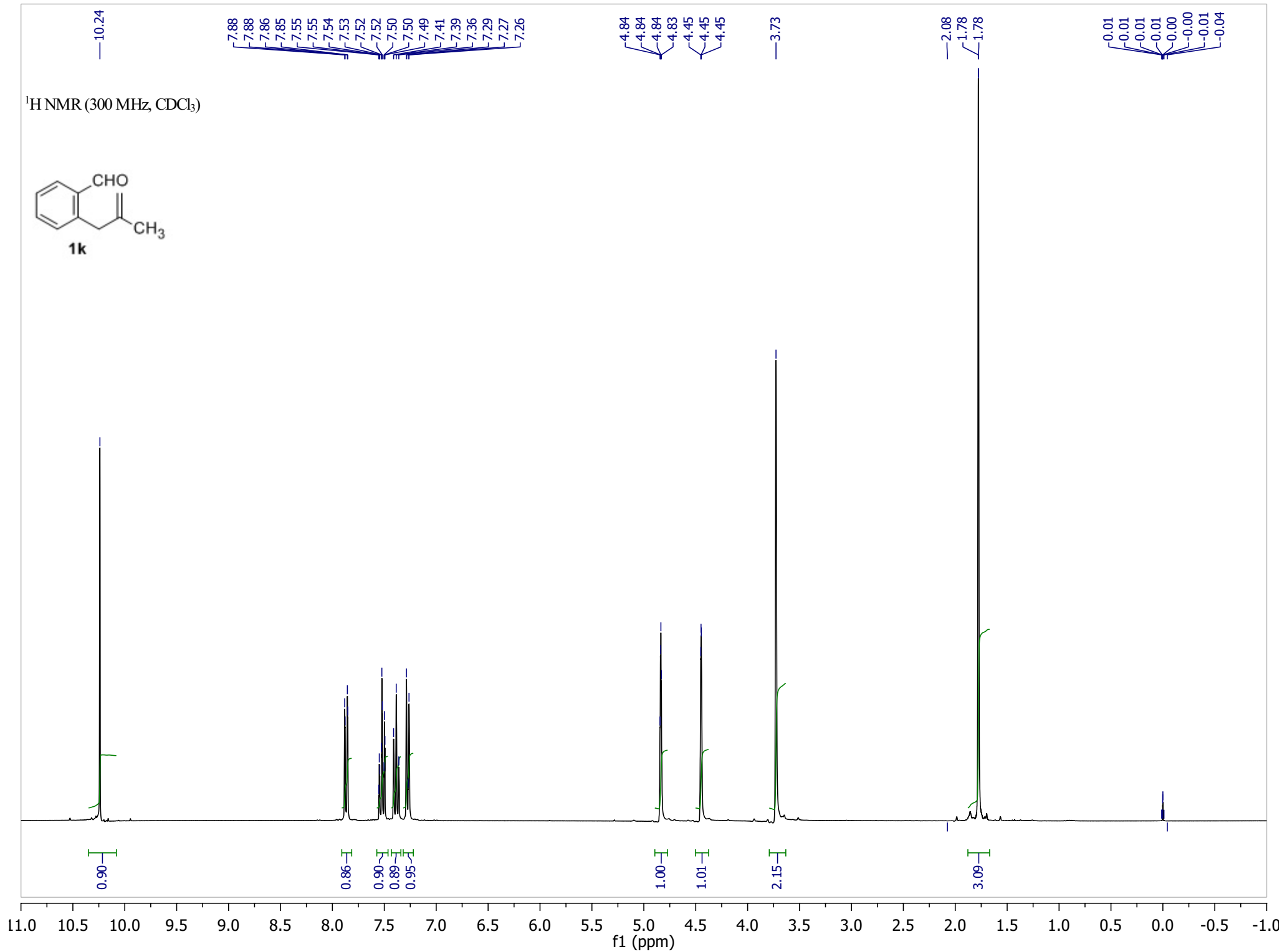
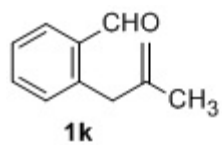


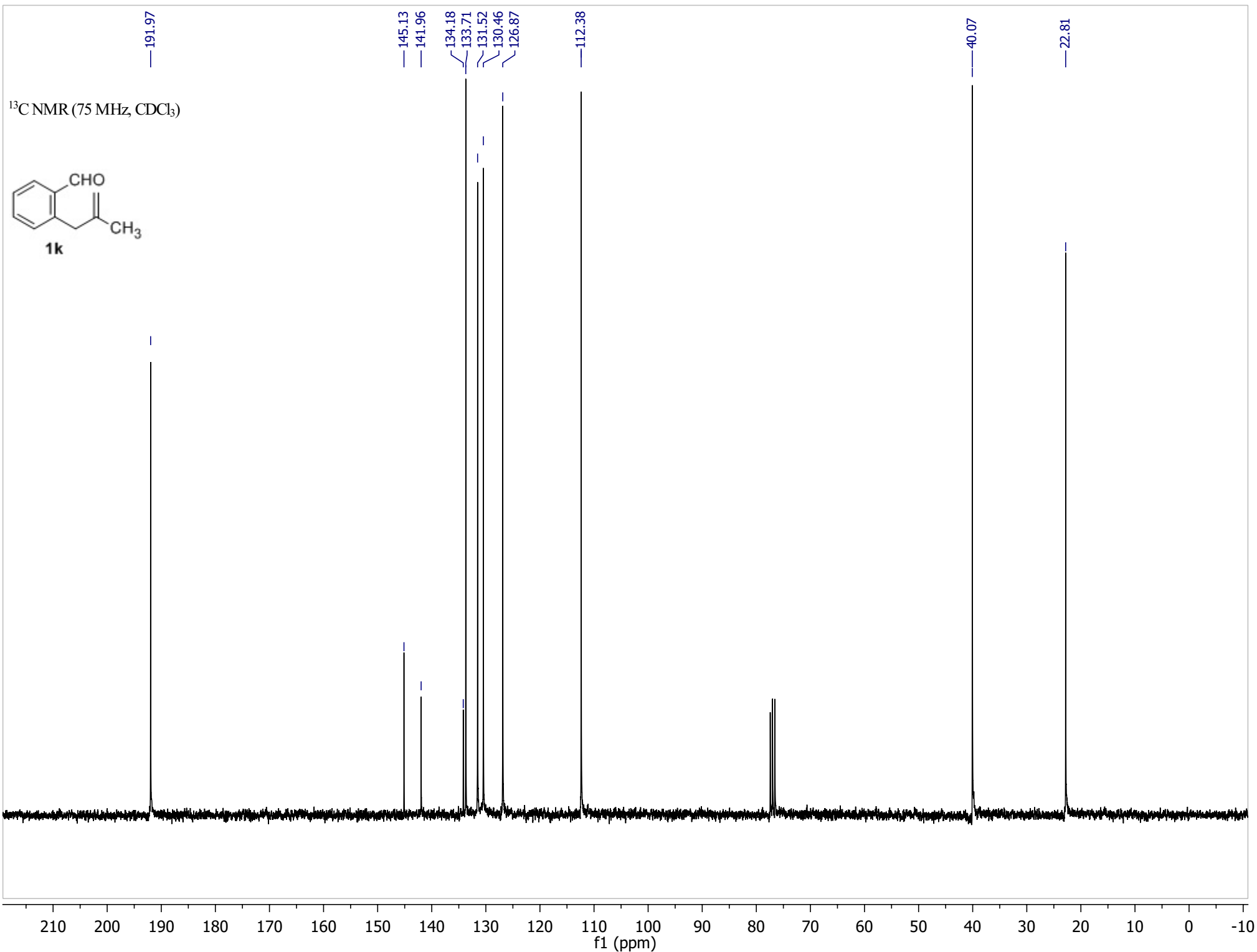


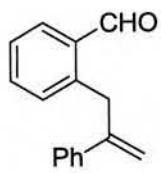
1h, 75 MHz, CDCl₃



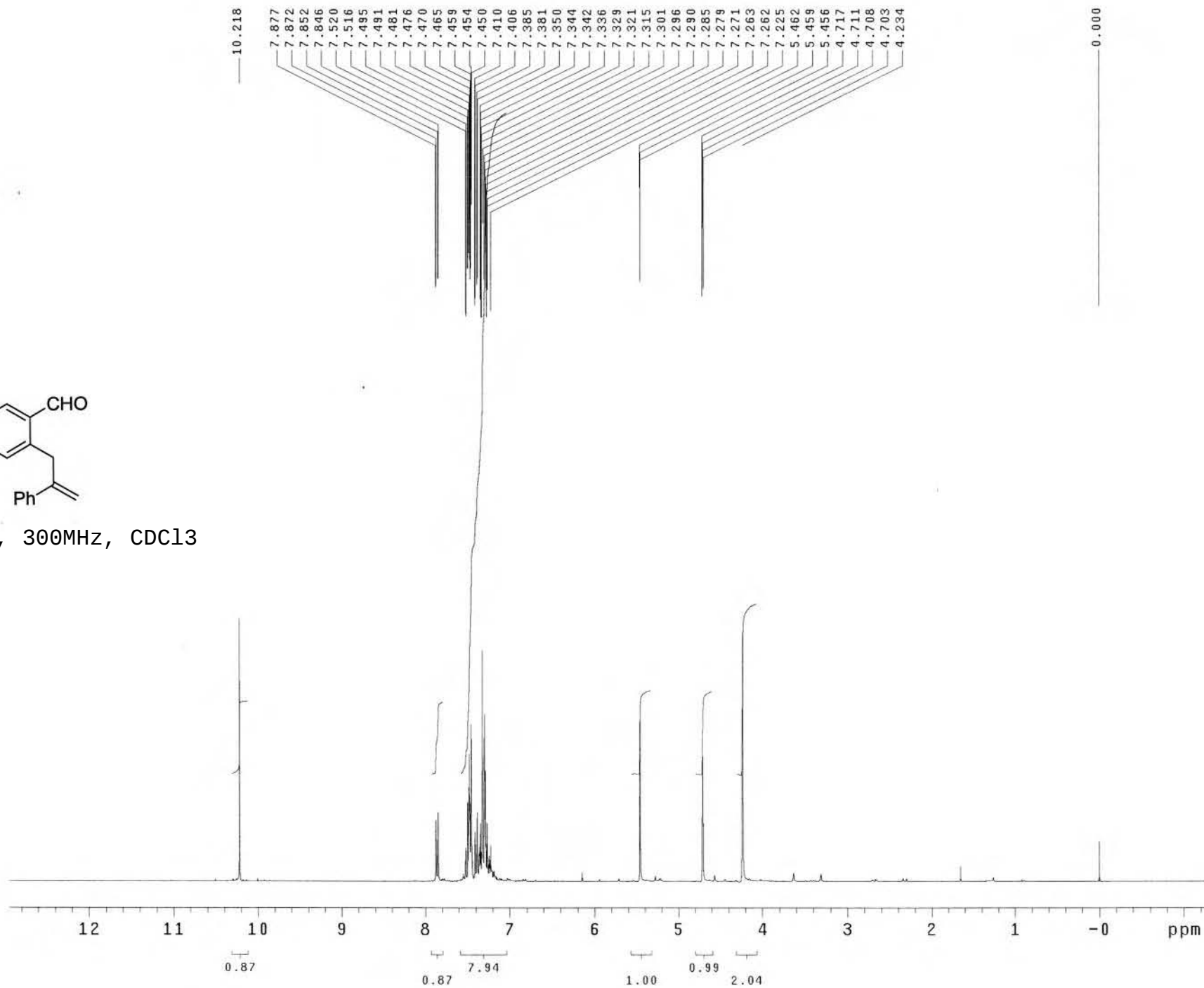
¹H NMR (300 MHz, CDCl₃)

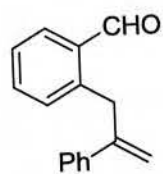




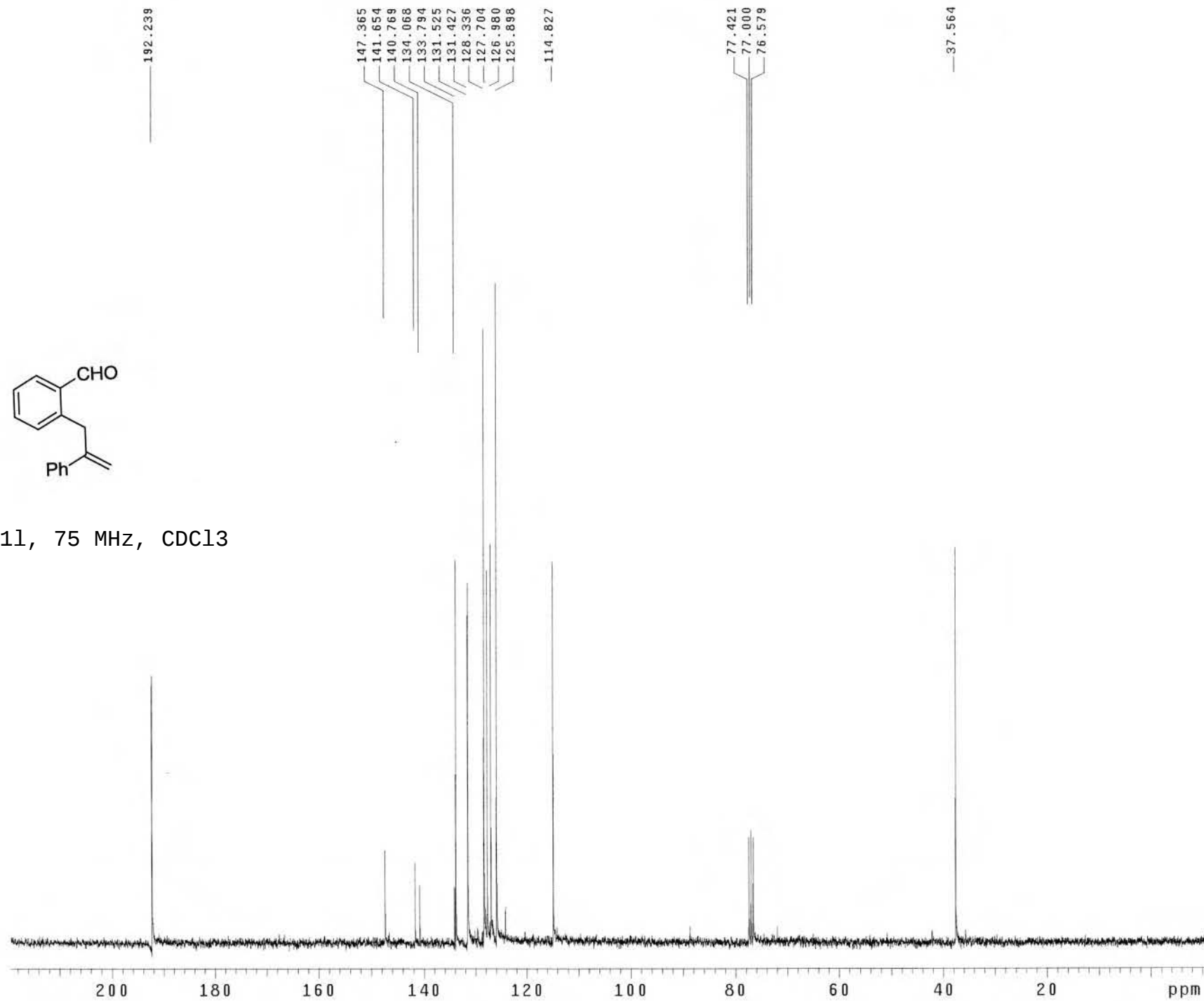


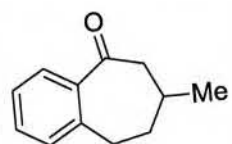
11, 300MHz, CDC13



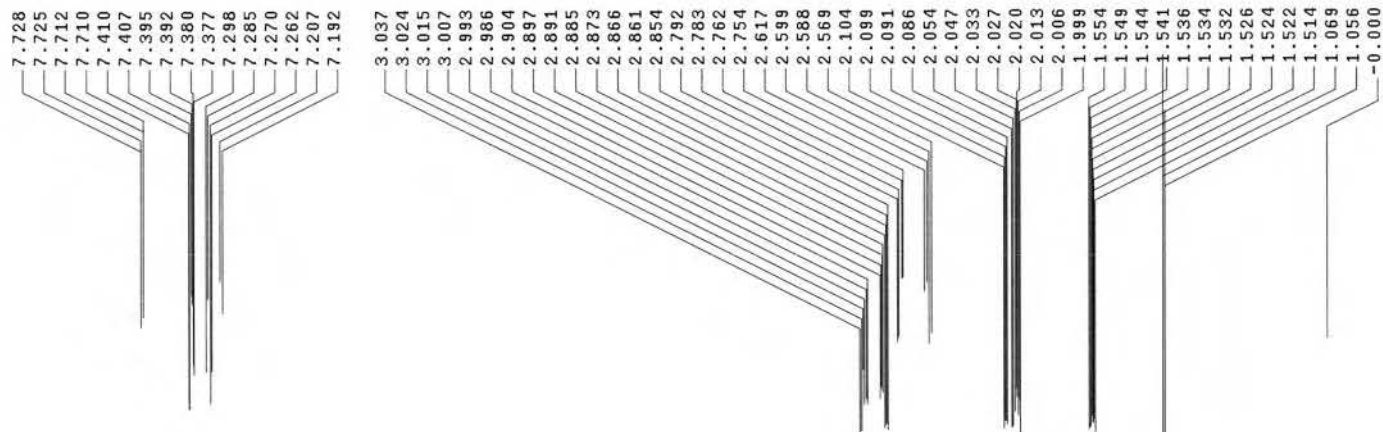
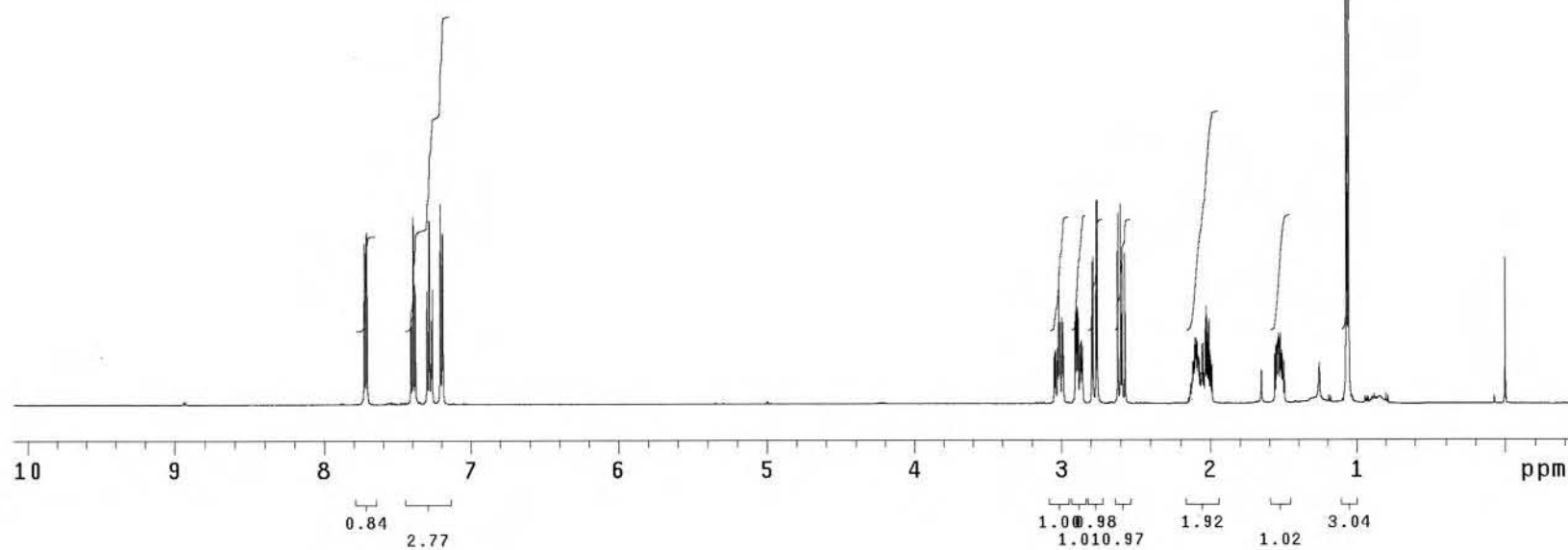


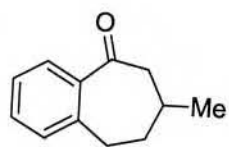
11, 75 MHz, CDCl₃



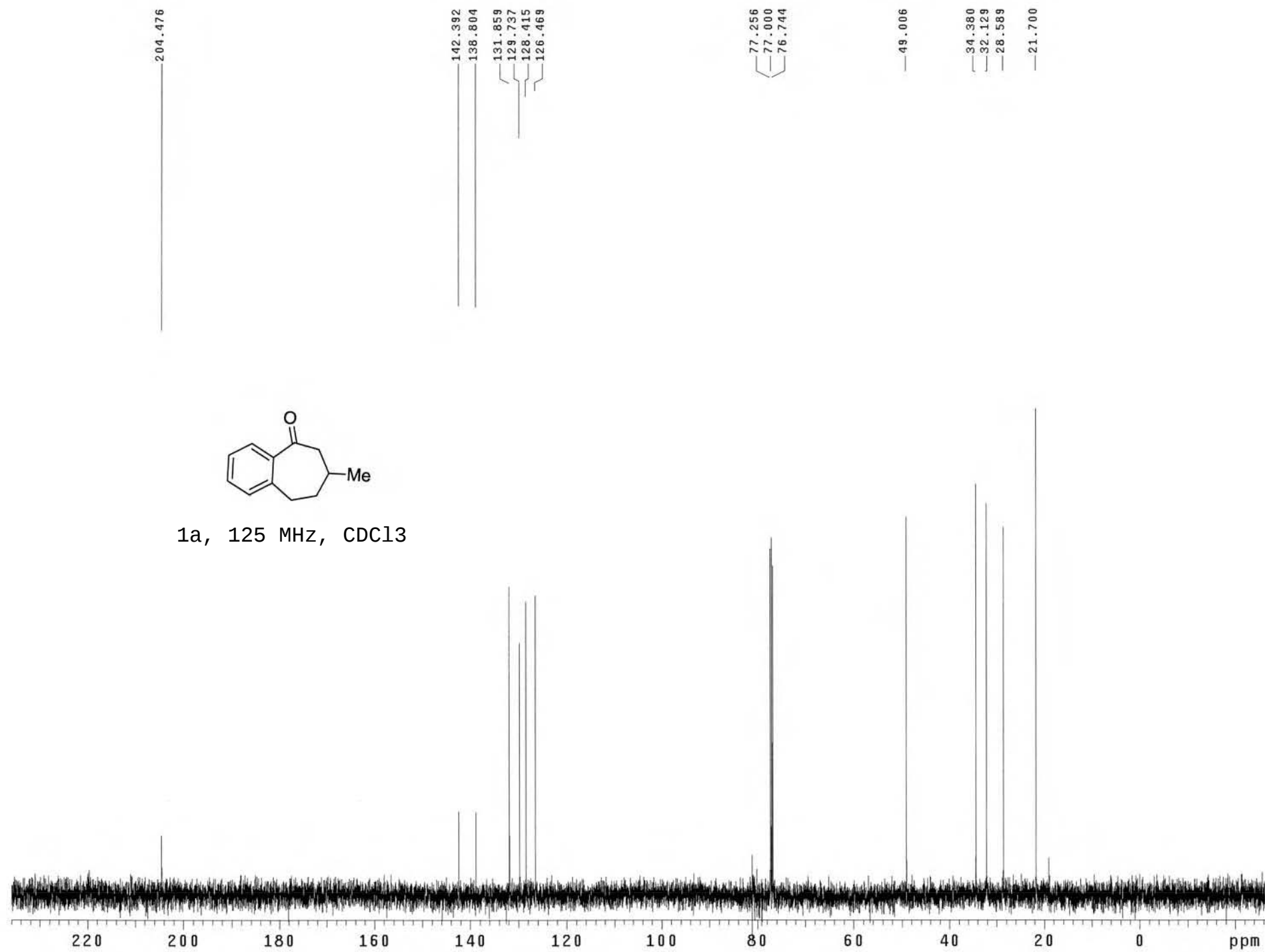


2a, 500 MHz, CDCl₃





1a, 125 MHz, CDCl₃



Pulse Sequence: gcosy

User: cdobey

Date: Apr. 7, 2011

Solvent: cdcl3

File: Me-7cosy2

Starting Time: 19:24:59

Completion Time: 19:30:07

Total acq. time 5 minutes

UNITYplus-500 "field"

Ambient temperature

PULSE SEQUENCE: gcosy

Relax. delay 1.375 sec

Acq. time 0.125 sec

Width 4085.4 Hz

2D Width 4085.4 Hz

Single scan

192 increments

OBSERVE H1, 499.8671220 MHz

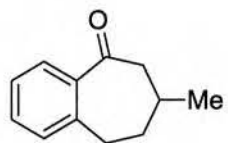
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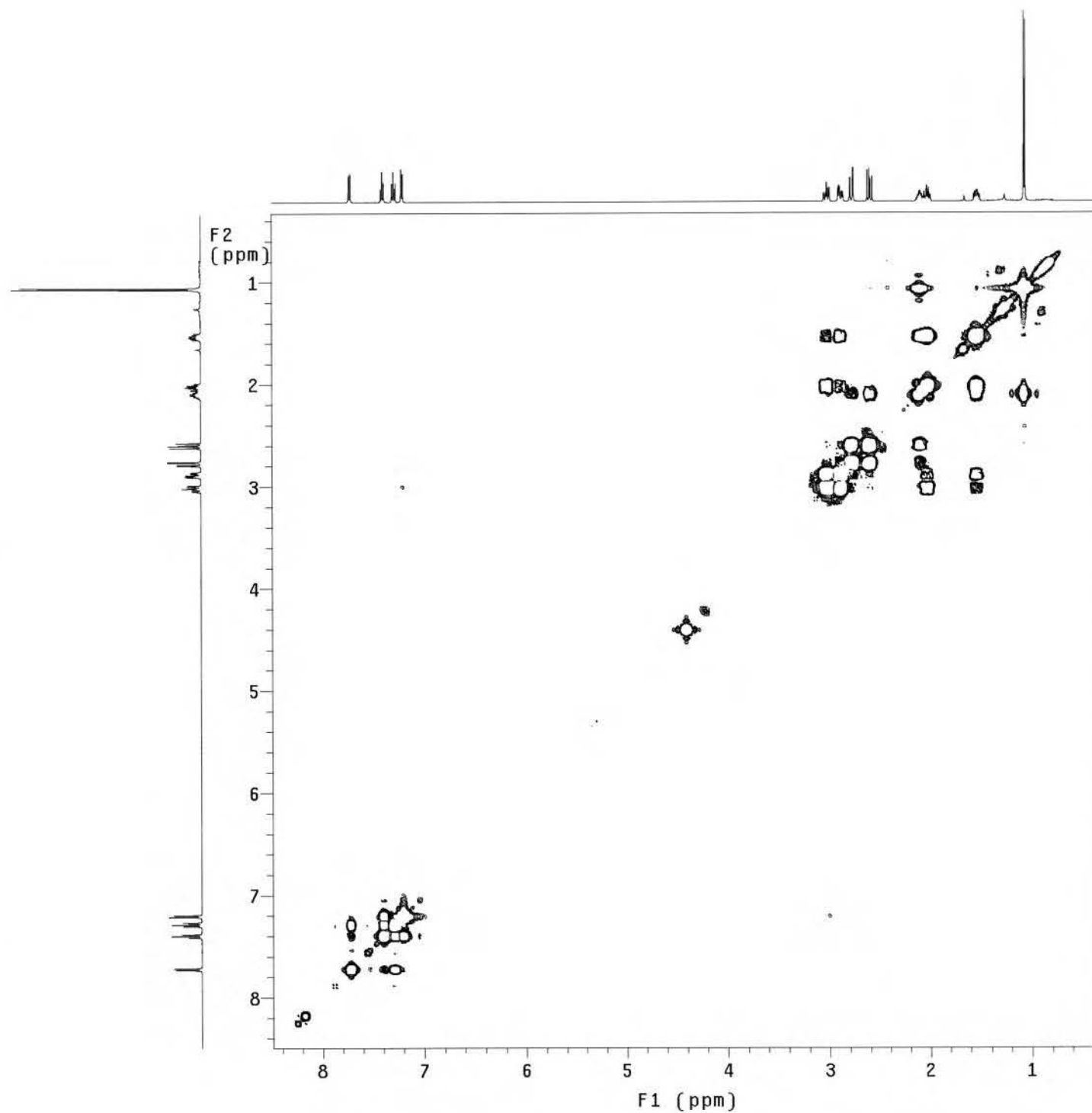
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FT size 1024 x 1024



COSY

2a



Pulse Sequence: gcosy

User: cdobev

Date: Apr. 7, 2011

Solvent: cdcl3

File: Me-7cosy2

Starting Time: 19:24:59

Completion Time: 19:30:07

Total acq. time 5 minutes

UNITYplus-500 "field"

Ambient temperature

PULSE SEQUENCE: gcosy

Relax. delay 1.375 sec

Acq. time 0.125 sec

Width 4085.4 Hz

2D Width 4085.4 Hz

Single scan

192 increments

OBSERVE H1, 499.8671220 MHz

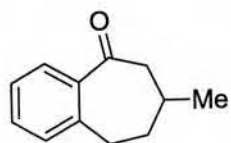
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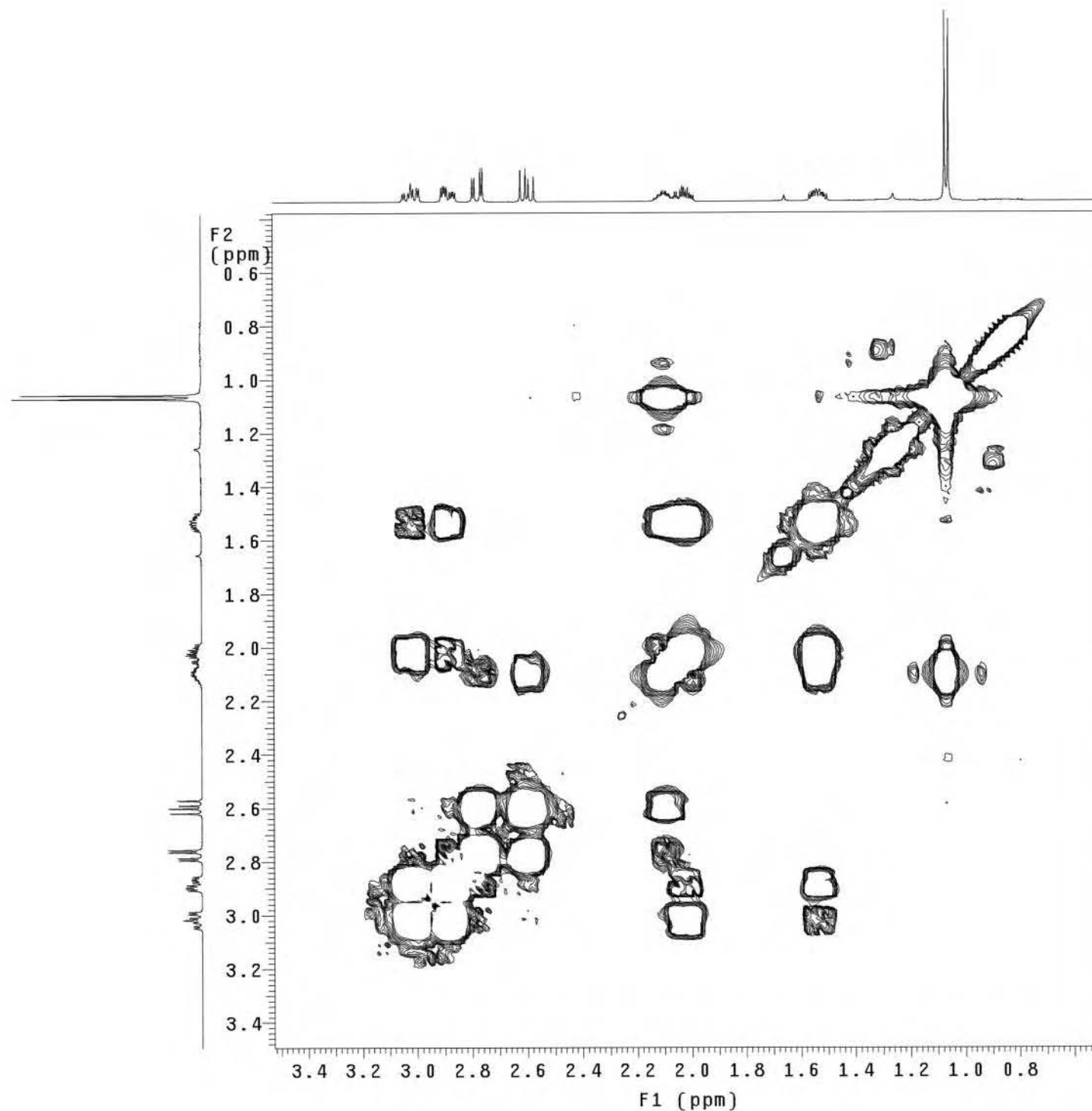
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FT size 1024 x 1024



COSY expansion

2a



Univ of Minnesota, VI-500

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User: 1-14-87

Date: Apr. 7, 2011

Solvent: cdc13

File: Me-7hmqc2

Starting Time: 18:50:22

Completion Time: 19:10:16

Total acq. time 19 minutes

UNITYplus-500 "field"

Temp. 23.0 C / 296.1 K

PULSE SEQUENCE: ghmqc

Relax. delay 1.375 sec

Acq. time 0.125 sec

Width 4085.4 Hz

2D Width 27529.2 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8671220 MHz

DECOUPLE C13, 125.7049442 MHz

Power 47 dB

on during acquisition

off during delay

wurst modulated

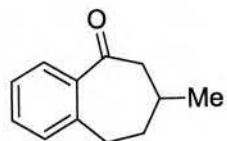
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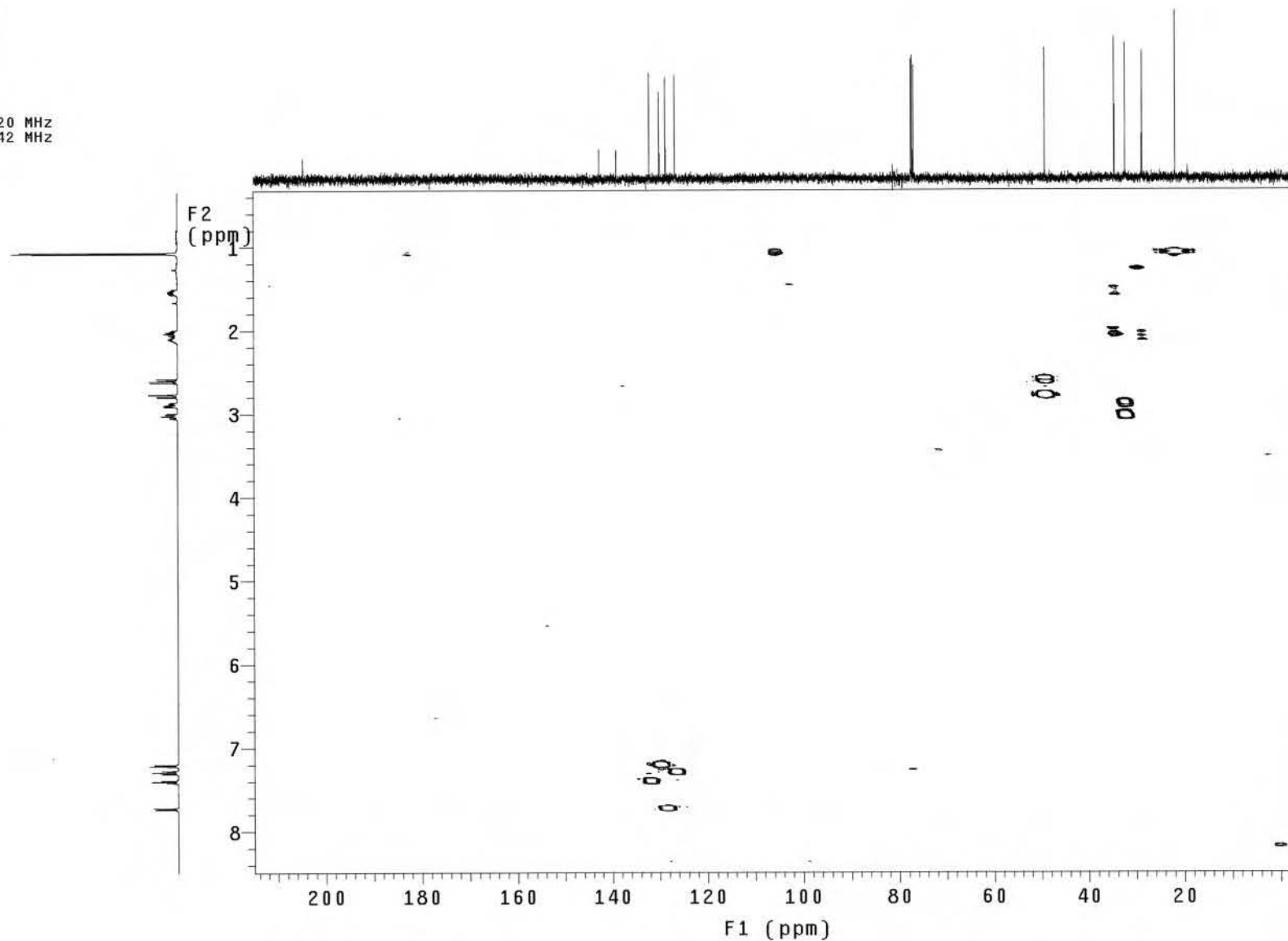
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HMQC

2a



Pulse Sequence: ghmqc

User: 1-14-87

Date: Apr. 7, 2011

Solvent: cdcl3

File: Me-7hmqc2

Starting Time: 18:50:22

Completion Time: 19:10:16

Total acq. time 19 minutes

UNITYplus-500 "field"

Temp. 23.0 C / 296.1 K

PULSE SEQUENCE: ghmqc

Relax. delay 1.375 sec

Acq. time 0.125 sec

Width 4085.4 Hz

2D Width 27529.2 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8671220 MHz

DECOUPLE C13, 125.7049442 MHz

Power 47 dB

on during acquisition

off during delay

wurst modulated

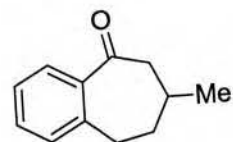
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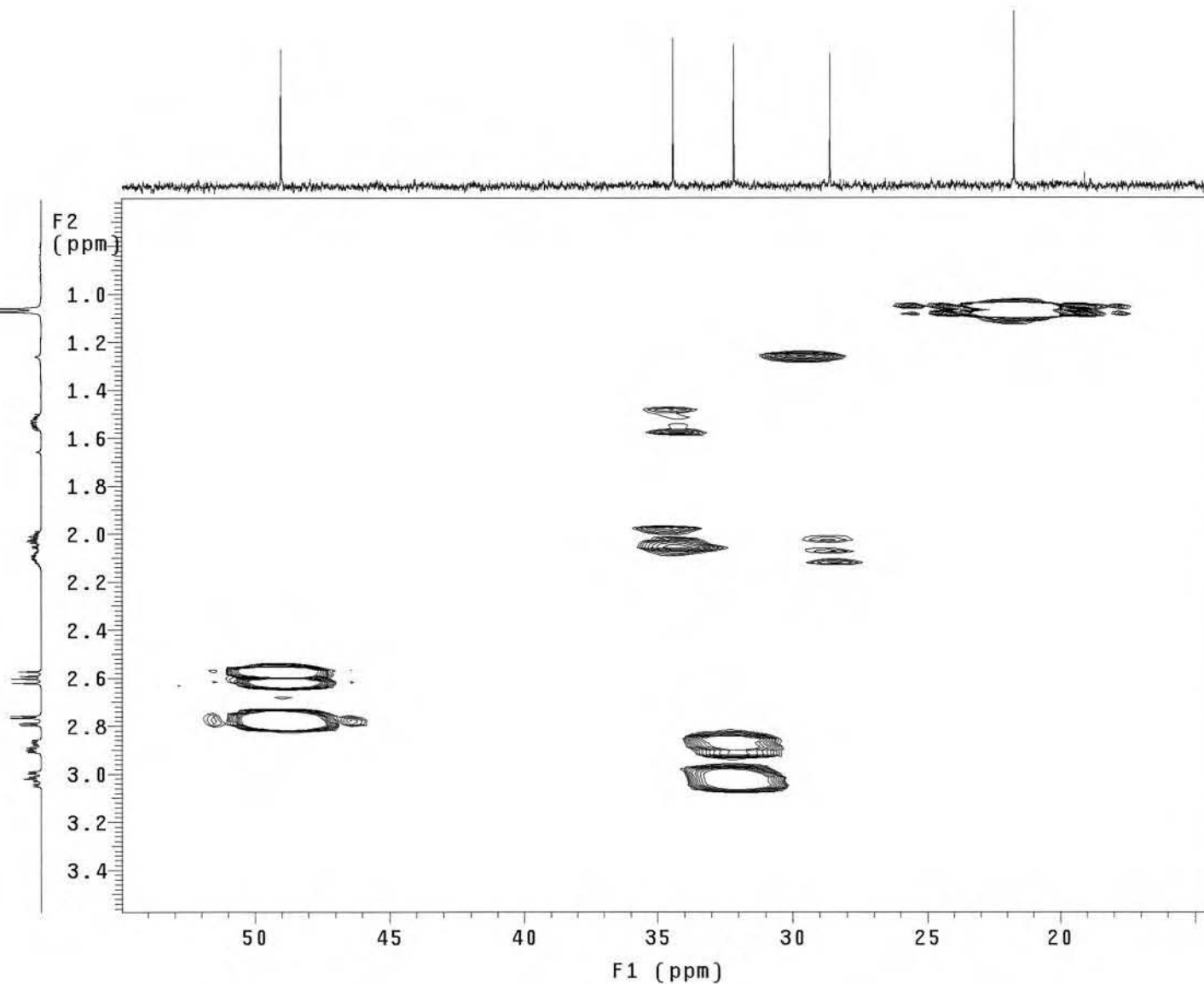
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FT size 1024 x 1024



HMQC expansion

2a



Univ of Minnesota, VI-500

Pulse Sequence: ghmqc

User: 1-14-87

Date: Apr. 5, 2011

Solvent: cdcl3

File: Me-7hmbc

Starting Time: 16:26:36

Completion Time: 16:47:06

Total acq. time 19 minutes

UNITYplus-500 "field"

Temp. 21.6 C / 294.8 K

PULSE SEQUENCE: ghmqc

Relax. delay 1.436 sec

Acq. time 0.064 sec

Width 8000.0 Hz

2D Width 32989.7 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8671337 MHz

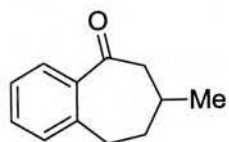
DATA PROCESSING

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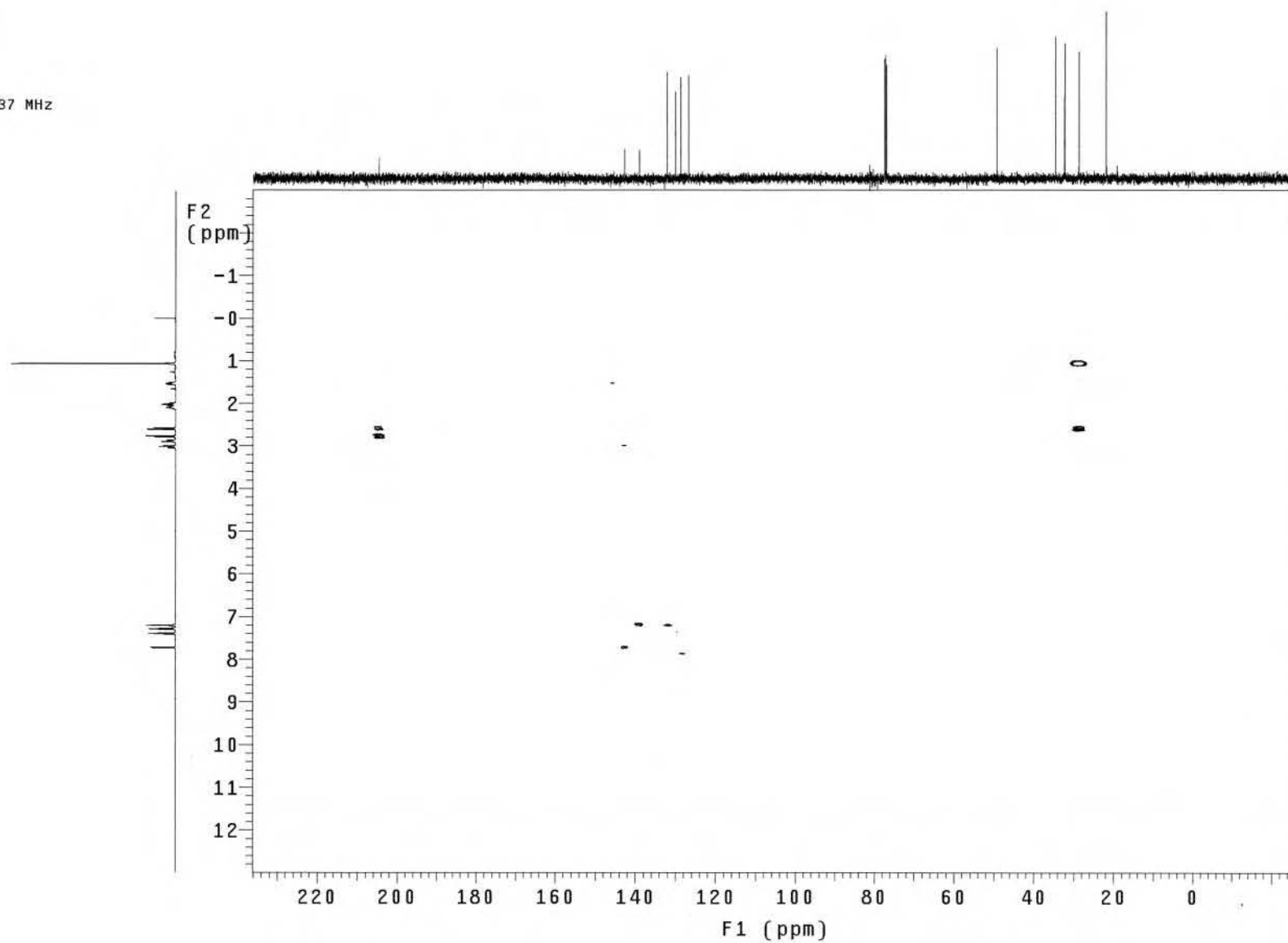
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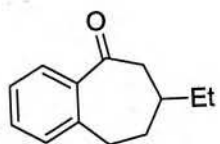
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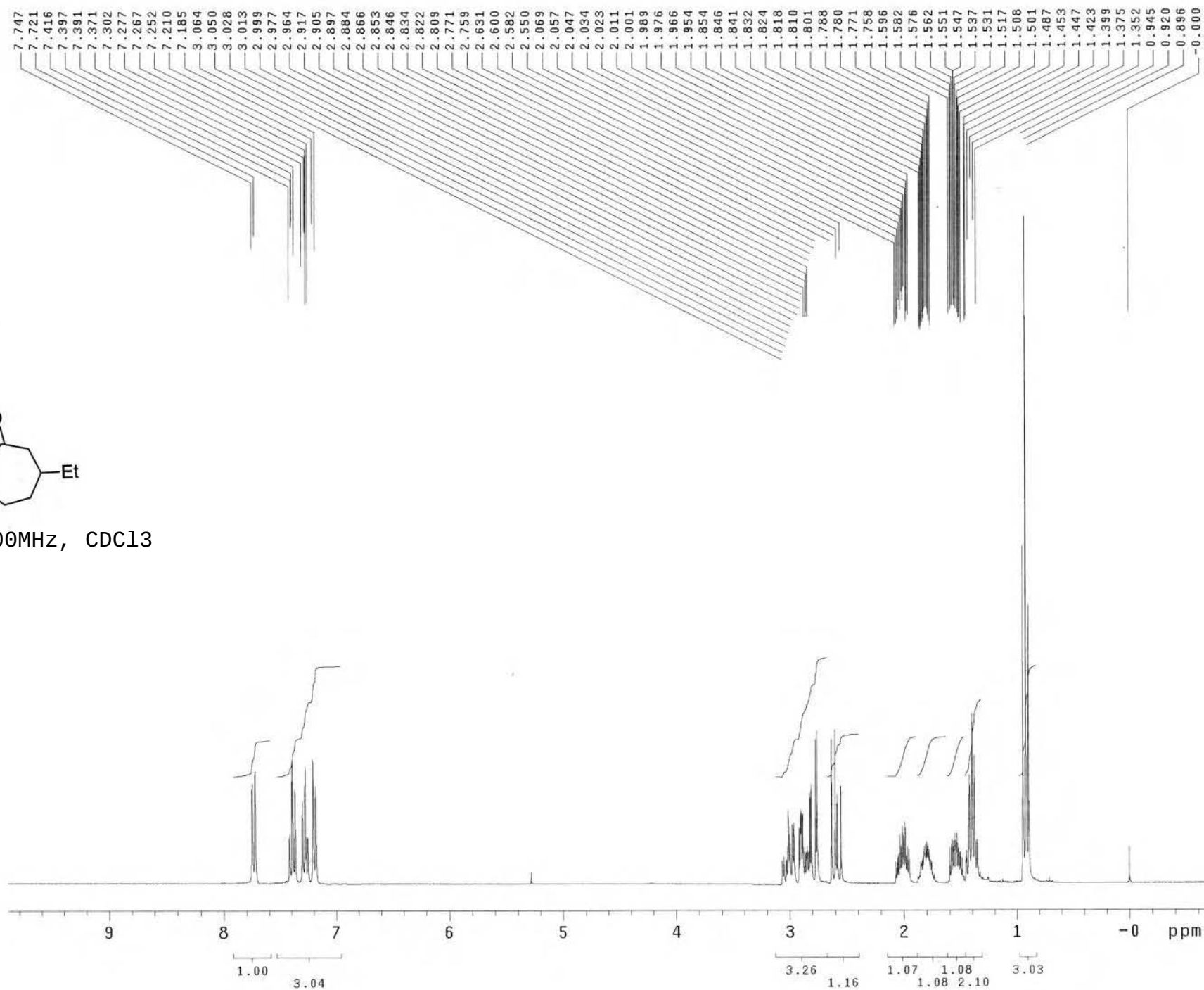
HMBC

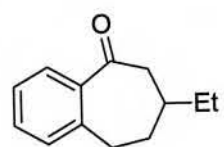
2a



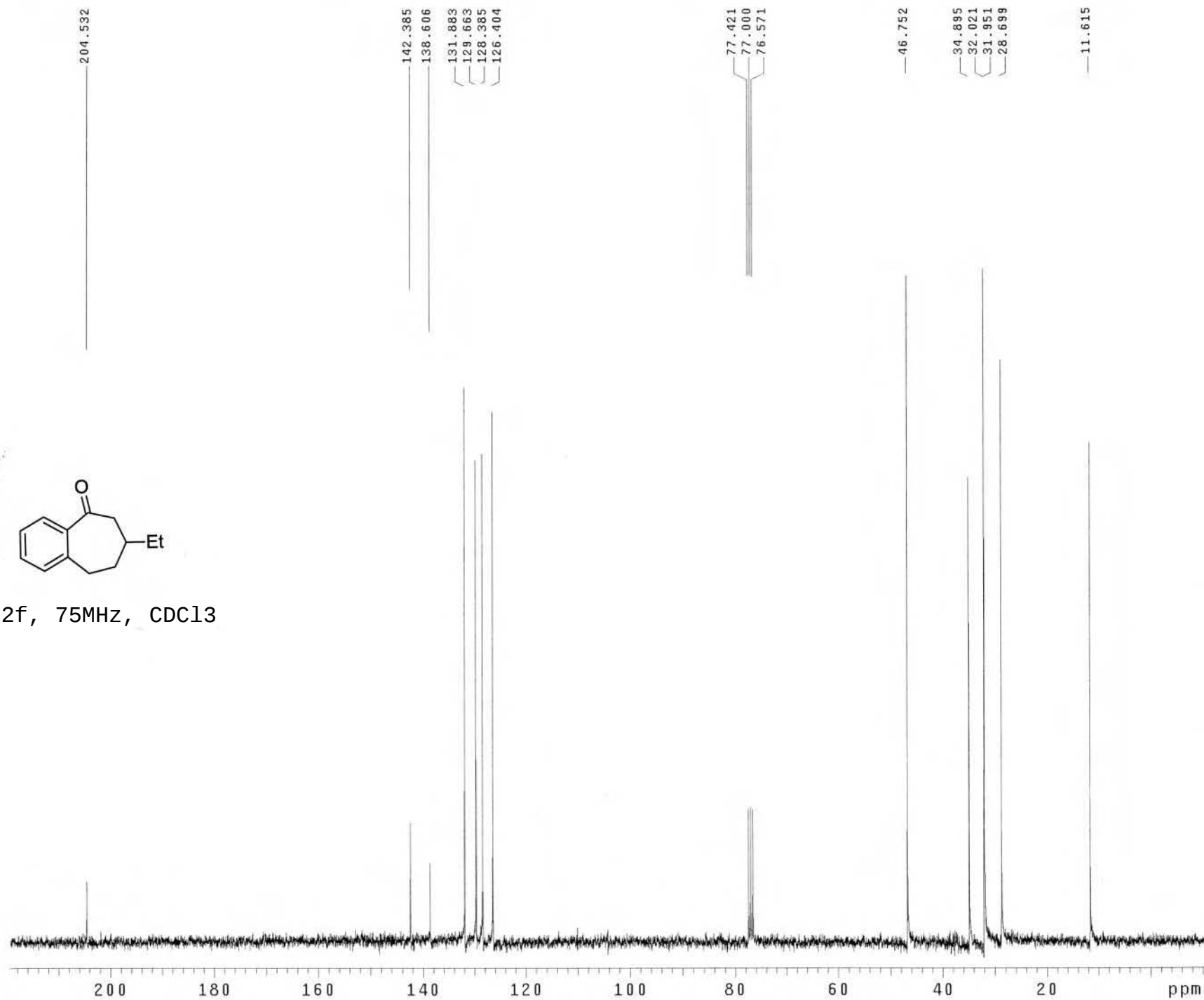


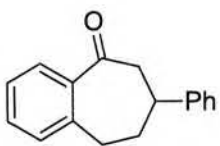
2f, 300MHz, CDCl₃



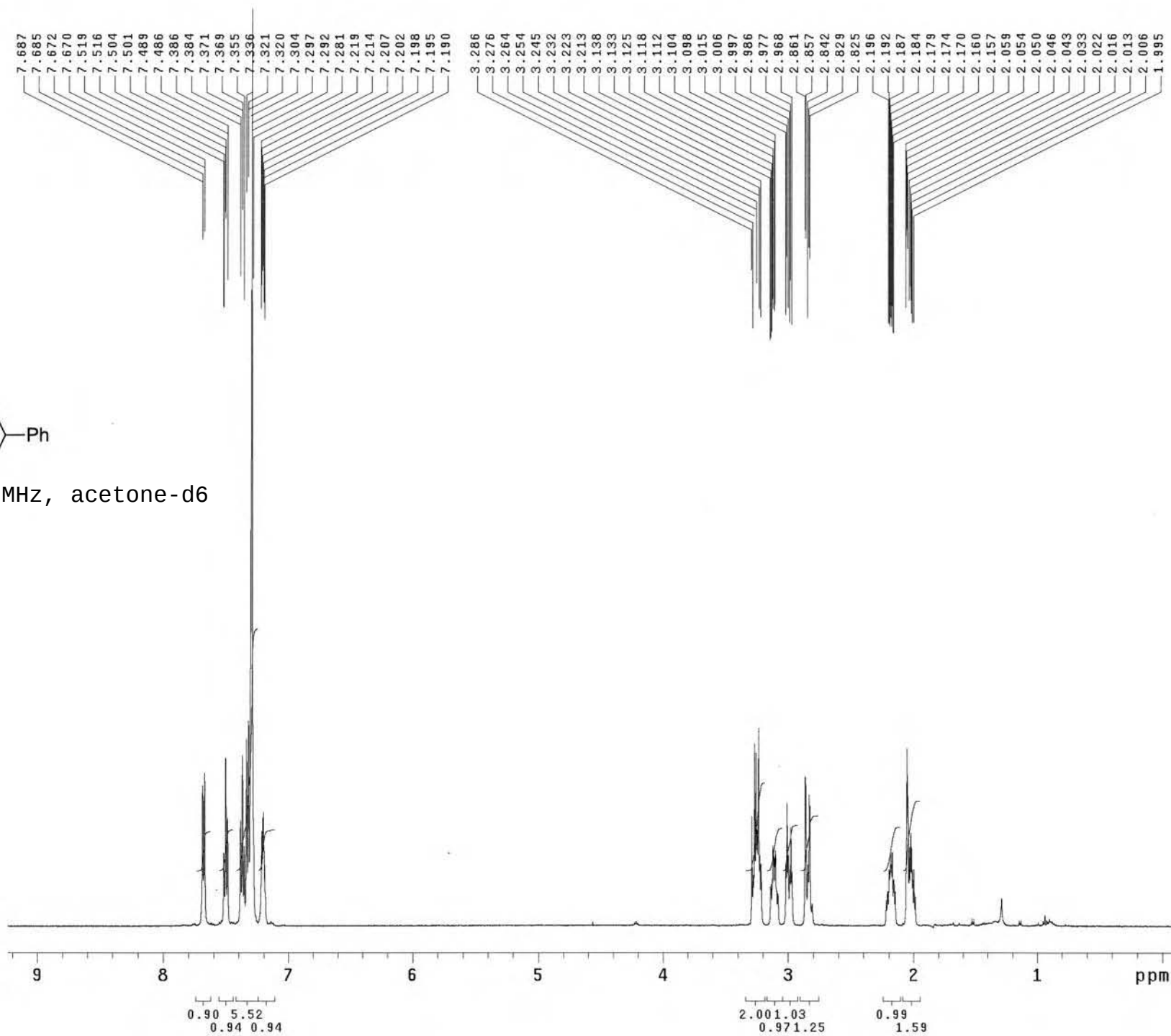


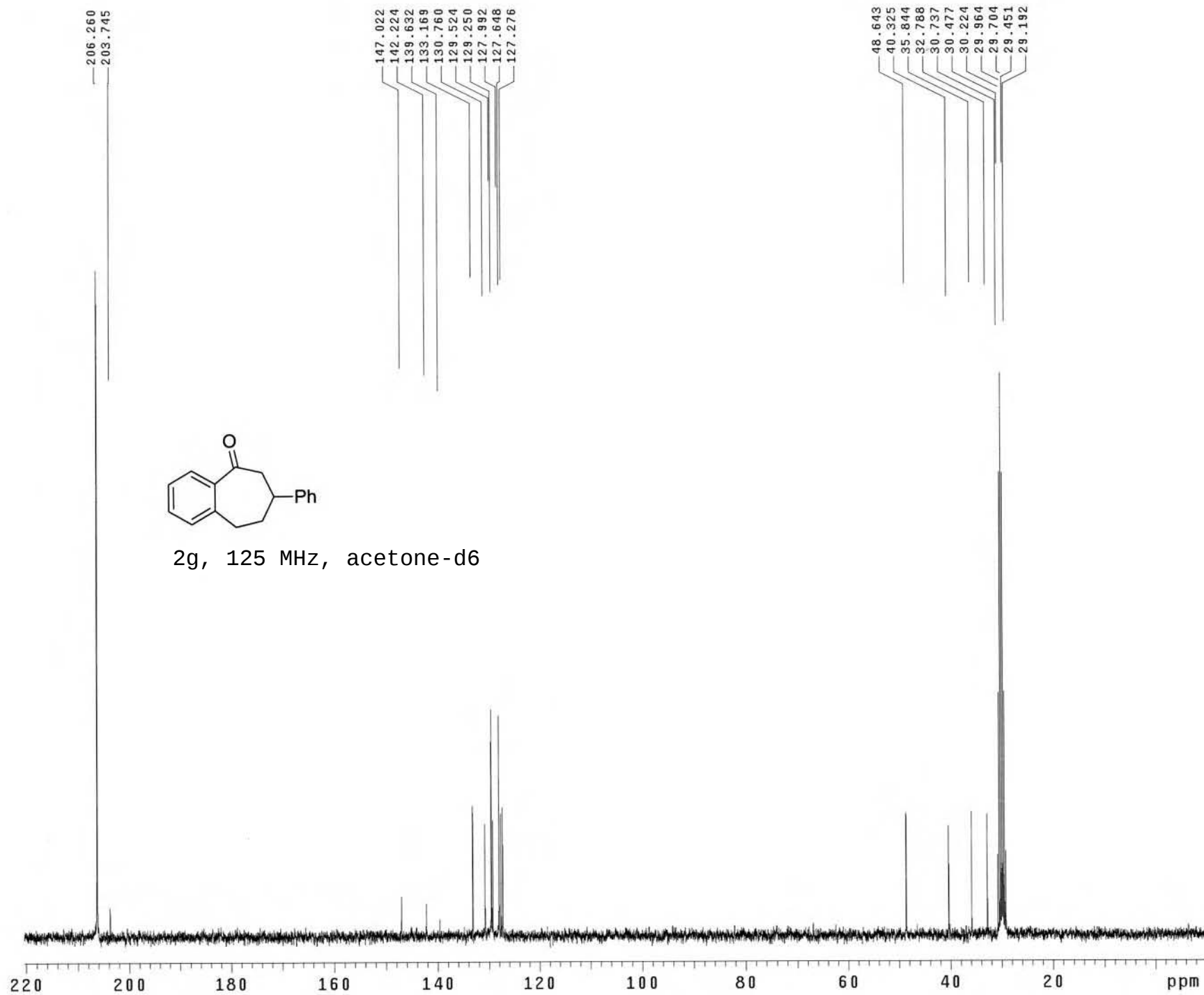
2f, 75MHz, CDC13





2g, 500MHz, acetone-d₆





Univ of Minnesota, VI-500

Pulse Sequence: gcosy

User: cdobev

Date: Mar. 29, 2011

Solvent: acetone

File: Ph-7cosy4

Starting Time: 17:16:28

Completion Time: 17:36:14

Total acq. time 19 minutes

UNITYplus-500 "field"

Ambient temperature

PULSE SEQUENCE: gcosy

Relax. delay 1.390 sec

Acq. time 0.110 sec

Width 4670.7 Hz

2D Width 4670.7 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8697163 MHz

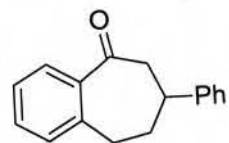
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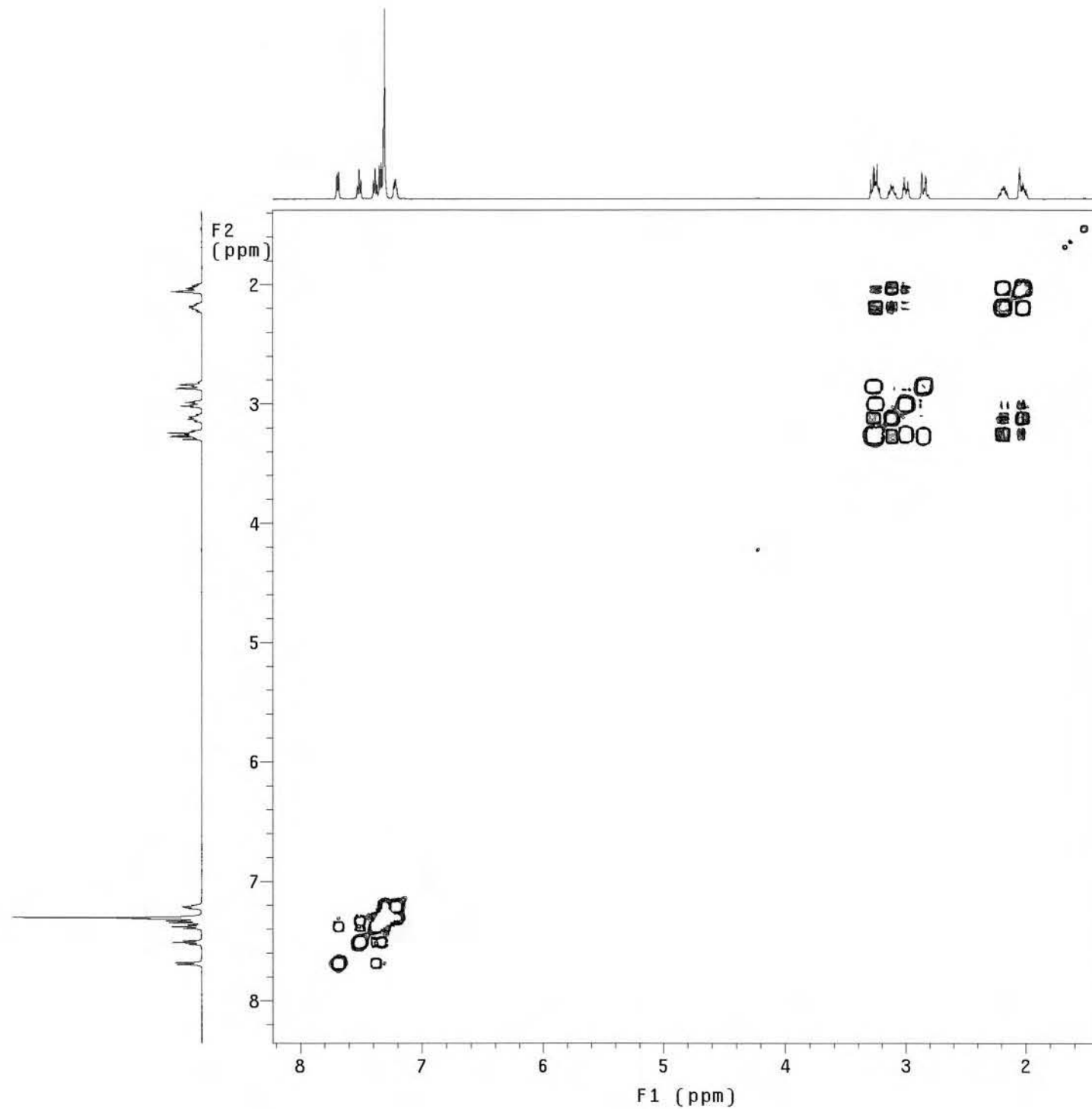
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FT size 1024 x 1024



COSY

2g



Pulse Sequence: gcosy

User: cdobev

Date: Mar. 29, 2011

Solvent: acetone

File: Ph-7cosy4

Starting Time: 17:16:28

Completion Time: 17:36:14

Total acq. time 19 minutes

UNITYplus-500 "field"

Ambient temperature

PULSE SEQUENCE: gcosy

Relax. delay 1.390 sec

Acq. time 0.110 sec

Width 4670.7 Hz

2D Width 4670.7 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8697163 MHz

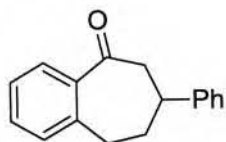
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F1 DATA PROCESSING

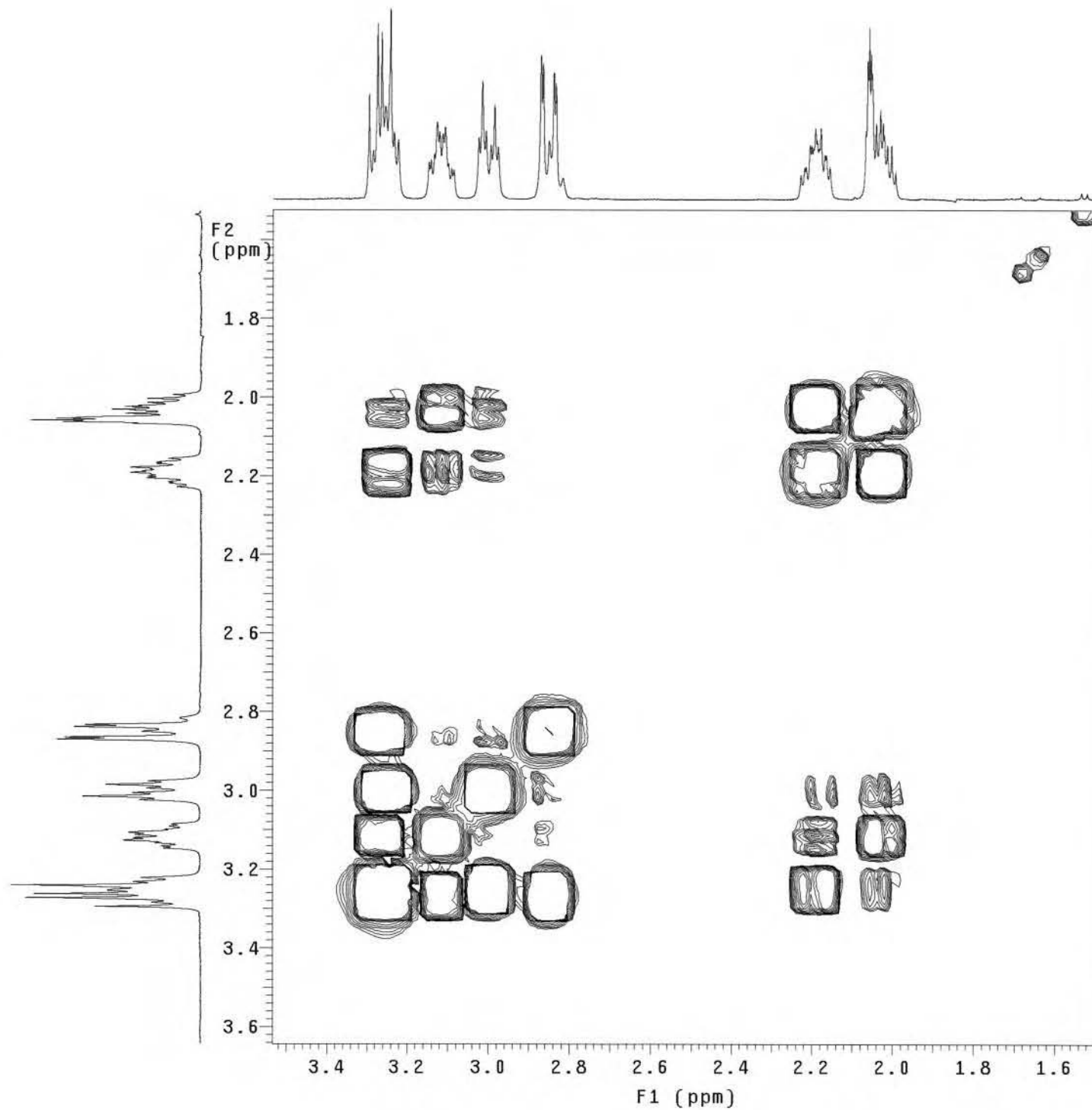
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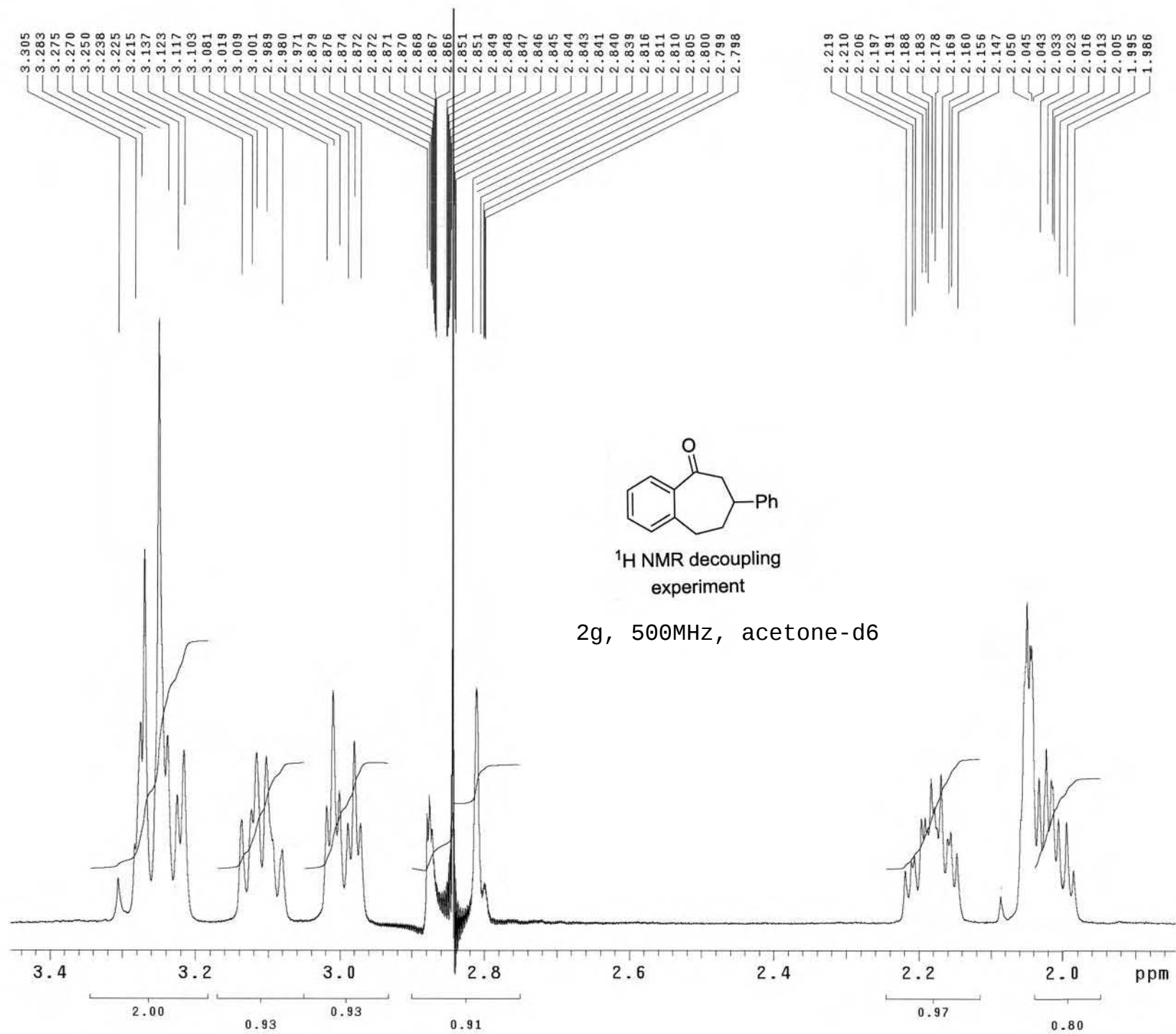
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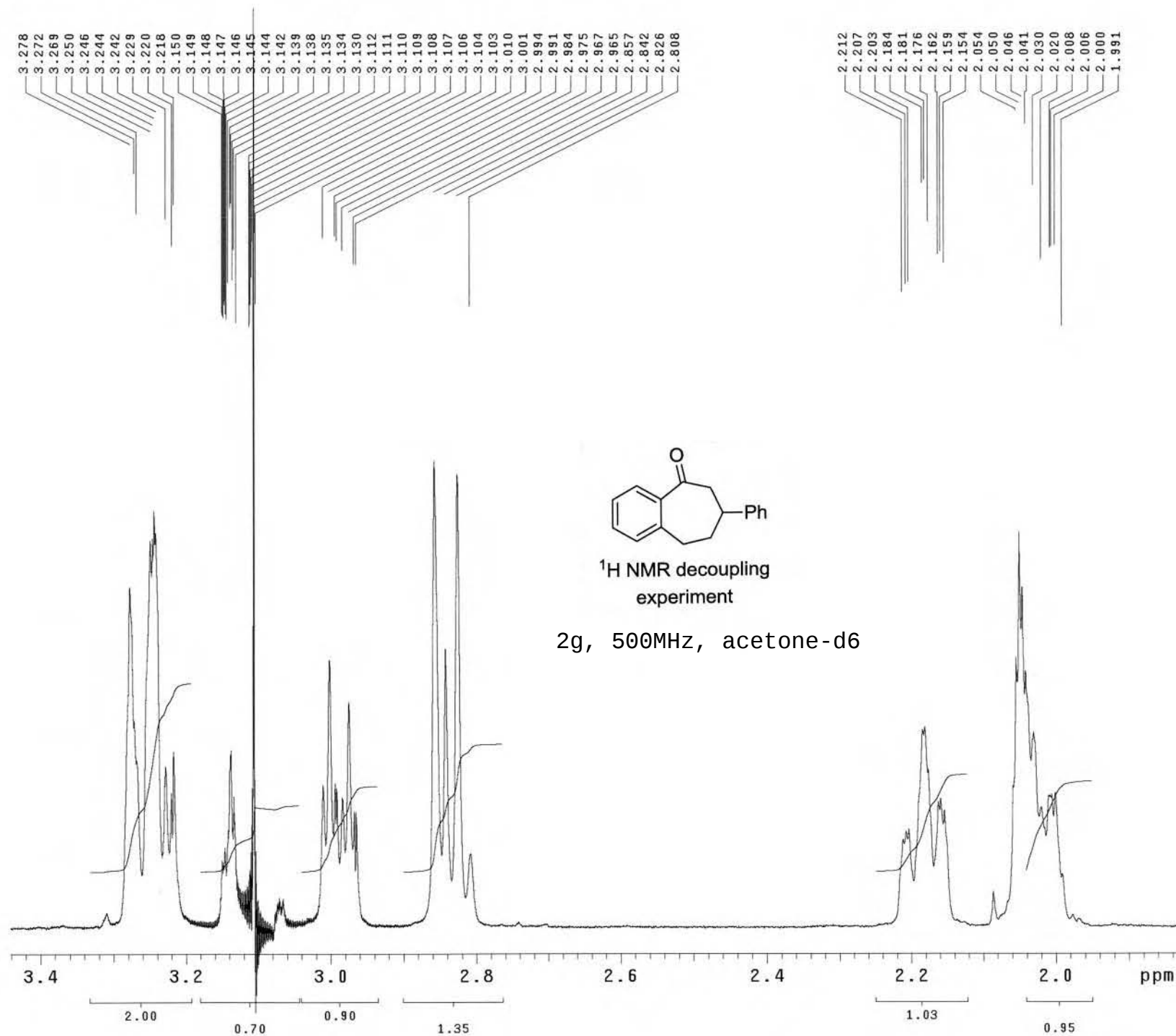


COSY expansion

2g







Pulse Sequence: ghmqc

User: 1-14-87

Date: Mar. 25, 2011

Solvent: acetone

File: Ph7hmqc

Starting Time: 10:15:13

Completion Time: 10:35:06

Total acq. time 19 minutes

UNITYplus-500 "field"

Temp. 21.7 C / 294.9 K

PULSE SEQUENCE: ghmqc

Relax. delay 1.390 sec

Acq. time 0.110 sec

Width 4670.7 Hz

2D Width 32989.7 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8697163 MHz

DECOUPLE C13, 125.7055094 MHz

Power 47 dB

on during acquisition

off during delay

wurst modulated

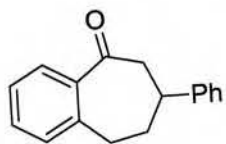
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Sine bell 0.055 sec

F1 DATA PROCESSING

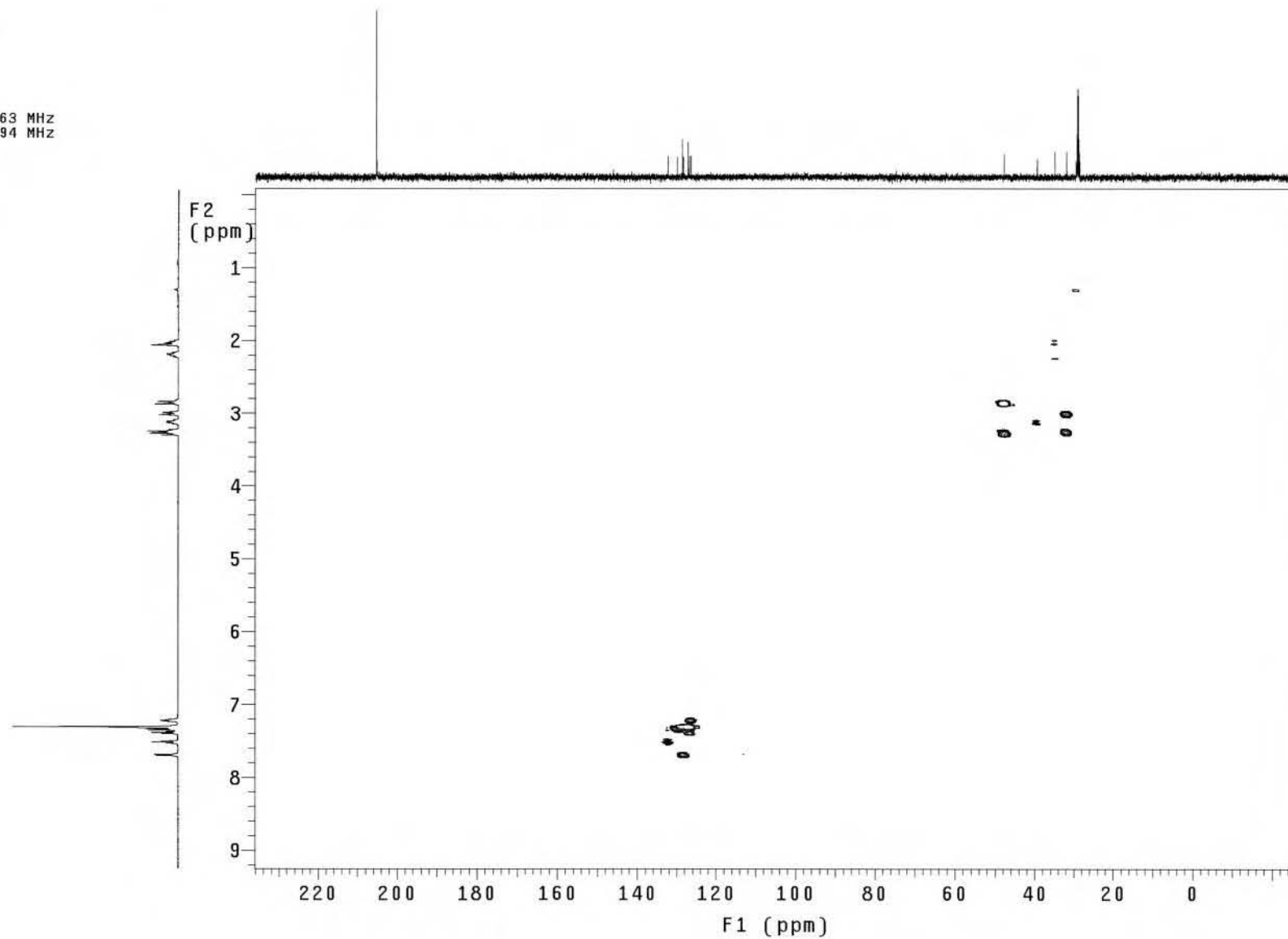
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FT size 1024 x 1024



HMQC

2g



Pulse Sequence: ghmqc

User: 1-14-87

Date: Mar. 25, 2011

Solvent: acetone

File: Ph7hmqc

Starting Time: 10:15:13

Completion Time: 10:35:06

Total acq. time 19 minutes

UNITYplus-500 "field"

Temp. 21.7 C / 294.9 K

PULSE SEQUENCE: ghmqc

Relax. delay 1.390 sec

Acq. time 0.110 sec

Width 4670.7 Hz

2D Width 32989.7 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8697163 MHz

DECOUPLE C13, 125.7055094 MHz

Power 47 dB

on during acquisition

off during delay

wurst modulated

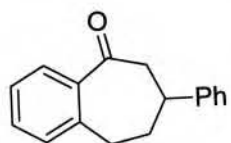
DATA PROCESSING

Sine bell 0.055 sec

F1 DATA PROCESSING

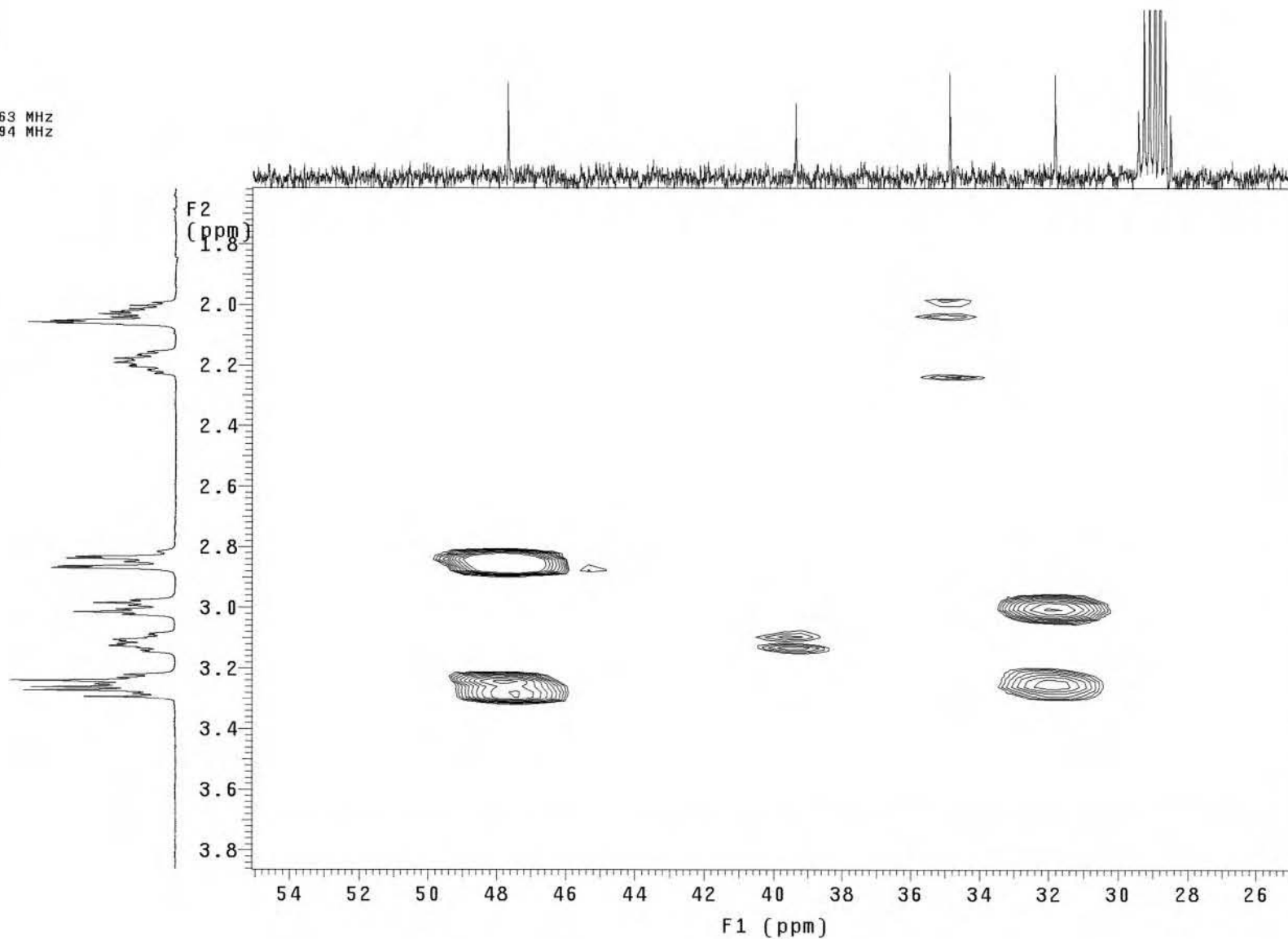
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FT size 1024 x 1024



HMQC expansion

2g



Pulse Sequence: ghmqc

User: 1-14-87

Date: Mar. 25, 2011

Solvent: acetone

File: Ph7hmbc

Starting Time: 10:35:06

Completion Time: 10:55:37

Total acq. time 19 minutes

UNITYplus-500 "field"

Temp. 21.7 C / 294.9 K

PULSE SEQUENCE: ghmqc

Relax. delay 1.390 sec

Acq. time 0.110 sec

Width 4670.7 Hz

2D Width 32989.7 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8697163 MHz

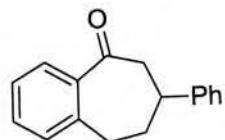
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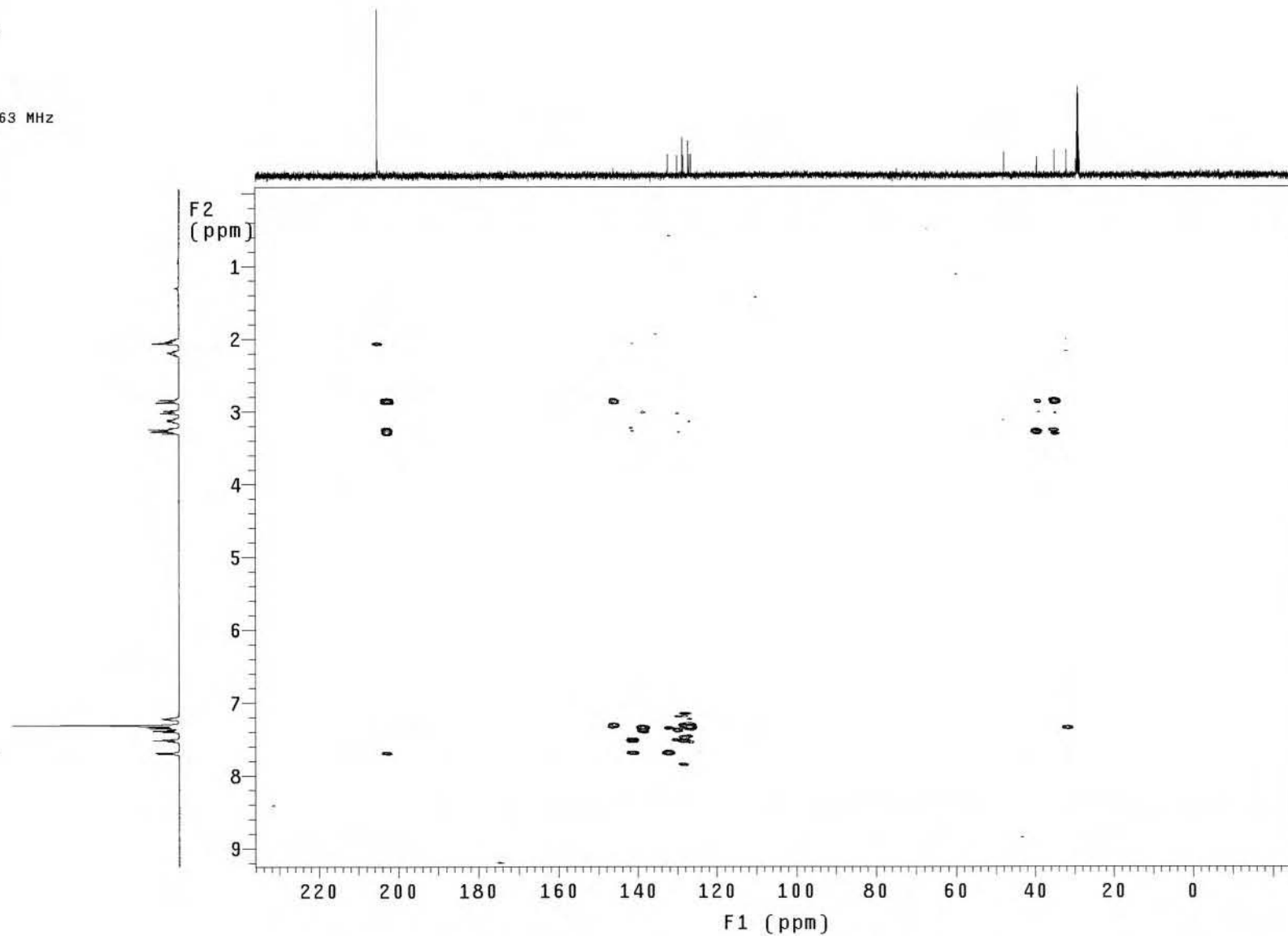
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FT size 1024 x 1024



HMBC

2g



Pulse Sequence: ghmqc

User: 1-14-87

Date: Mar. 25, 2011

Solvent: acetone

File: Ph7hmbc

Starting Time: 10:35:06

Completion Time: 10:55:37

Total acq. time 19 minutes

UNITYplus-500 "field"

Temp. 21.7 C / 294.9 K

PULSE SEQUENCE: ghmqc

Relax. delay 1.390 sec

Acq. time 0.110 sec

Width 4670.7 Hz

2D Width 32989.7 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8697163 MHz

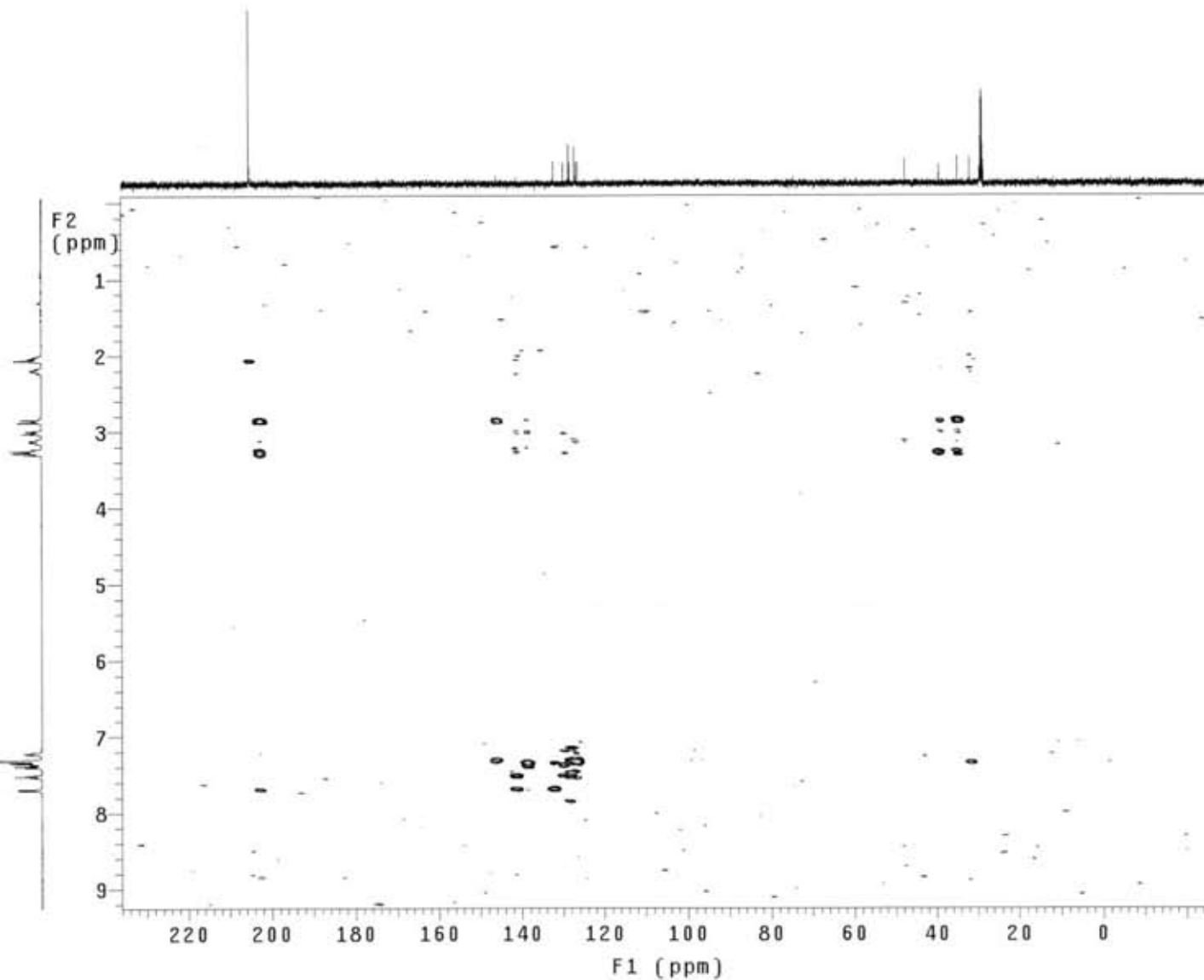
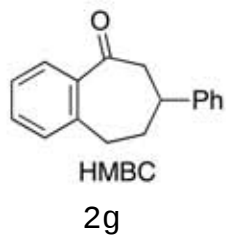
DATA PROCESSING

Sine bell 0.055 sec

F1 DATA PROCESSING

Sine bell 0.003 sec

FT size 1024 x 1024



Pulse Sequence: ghmqc

User: 1-14-87

Date: Mar. 25, 2011

Solvent: acetone

File: Ph7hmbc

Starting Time: 10:35:06

Completion Time: 10:55:37

Total acq. time 19 minutes

UNITYplus-500 "field"

Temp. 21.7 C / 294.9 K

PULSE SEQUENCE: ghmqc

Relax. delay 1.390 sec

Acq. time 0.110 sec

Width 4670.7 Hz

2D Width 32989.7 Hz

4 repetitions

192 increments

OBSERVE H1, 499.8697163 MHz

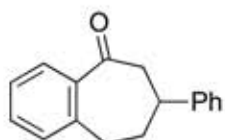
DATA PROCESSING

Sine bell 0.055 sec

F1 DATA PROCESSING

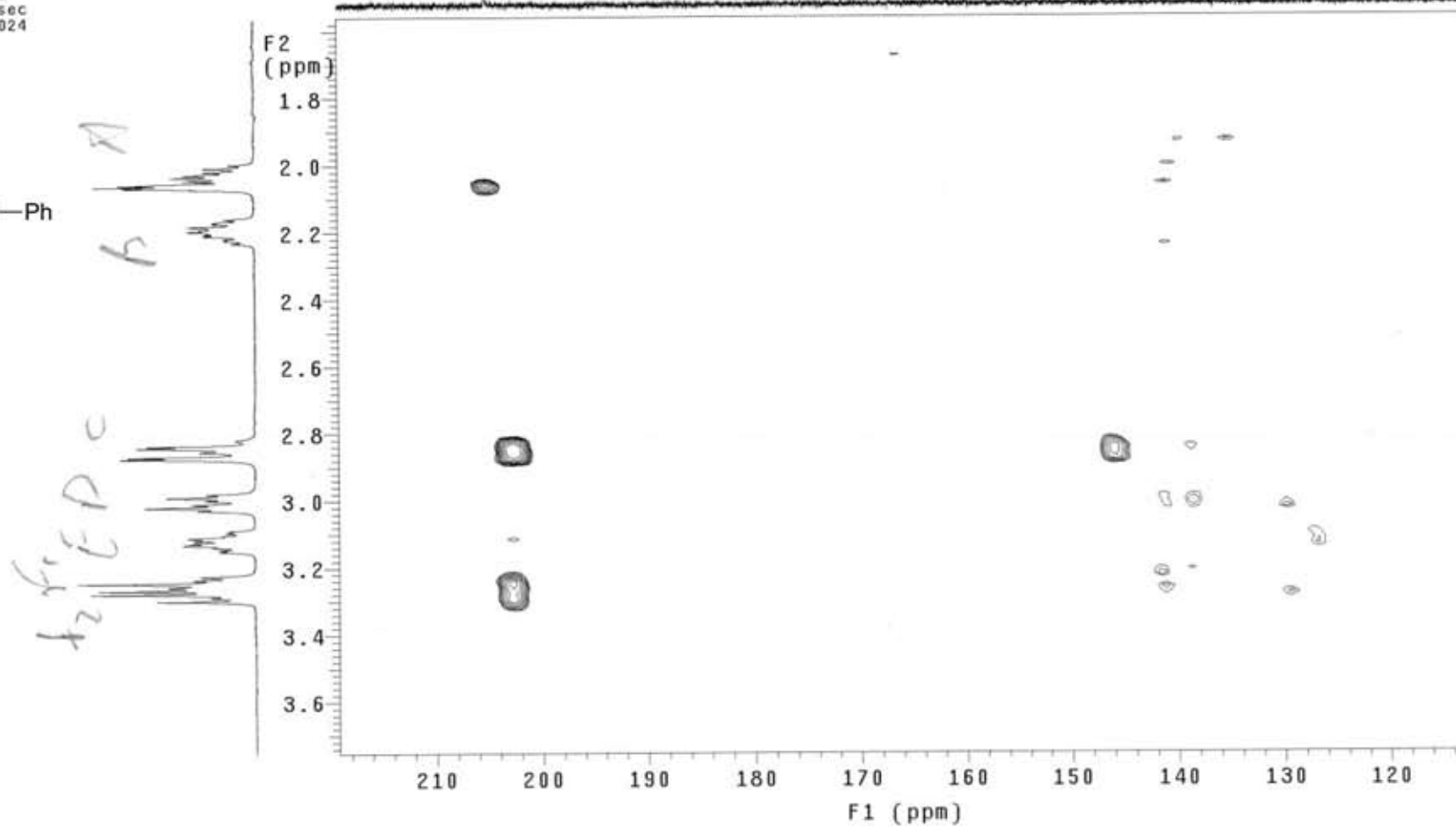
Sine bell 0.003 sec

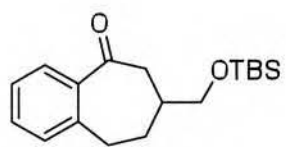
FT size 1024 x 1024



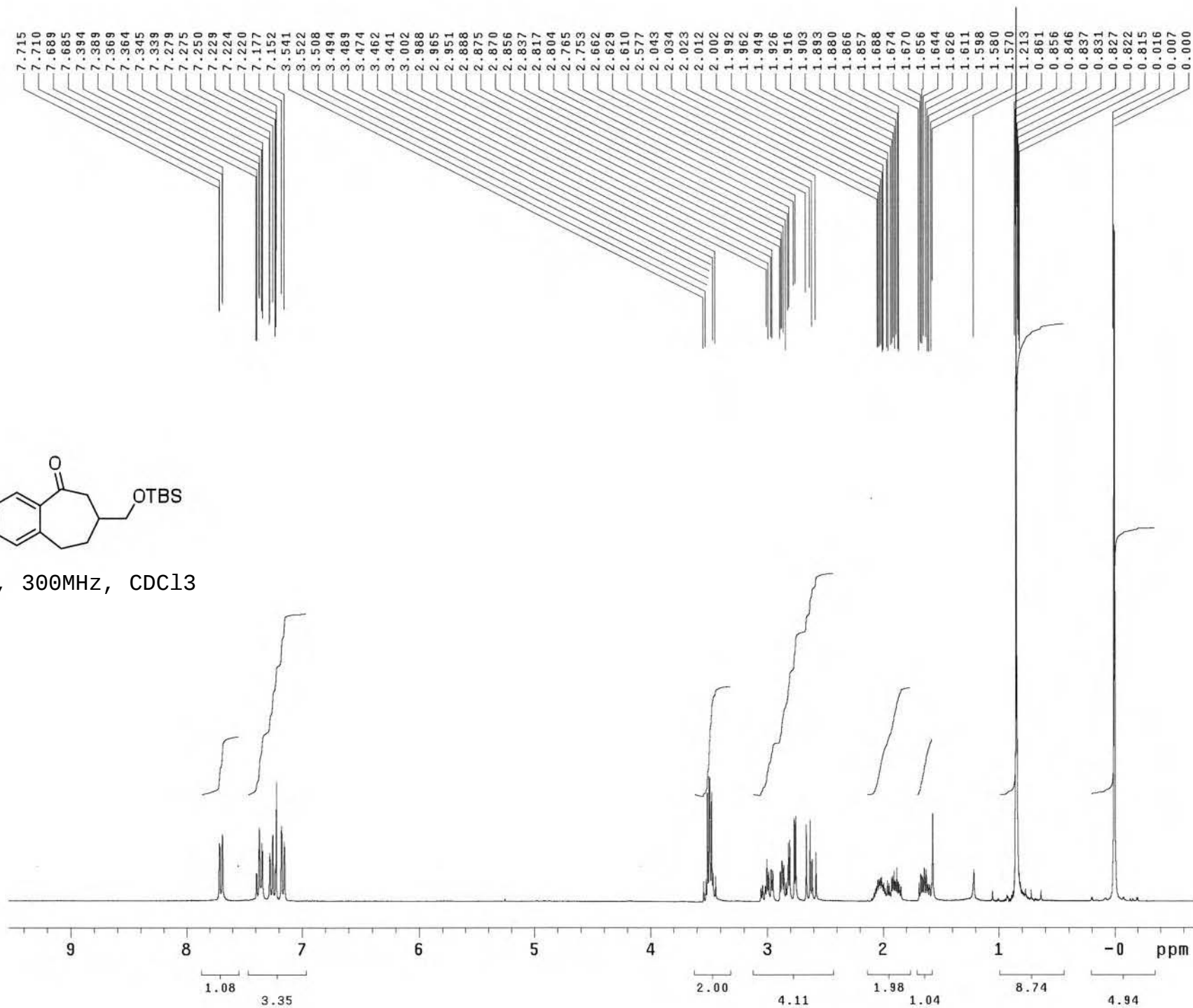
HMBC

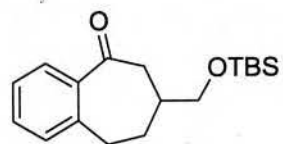
2g



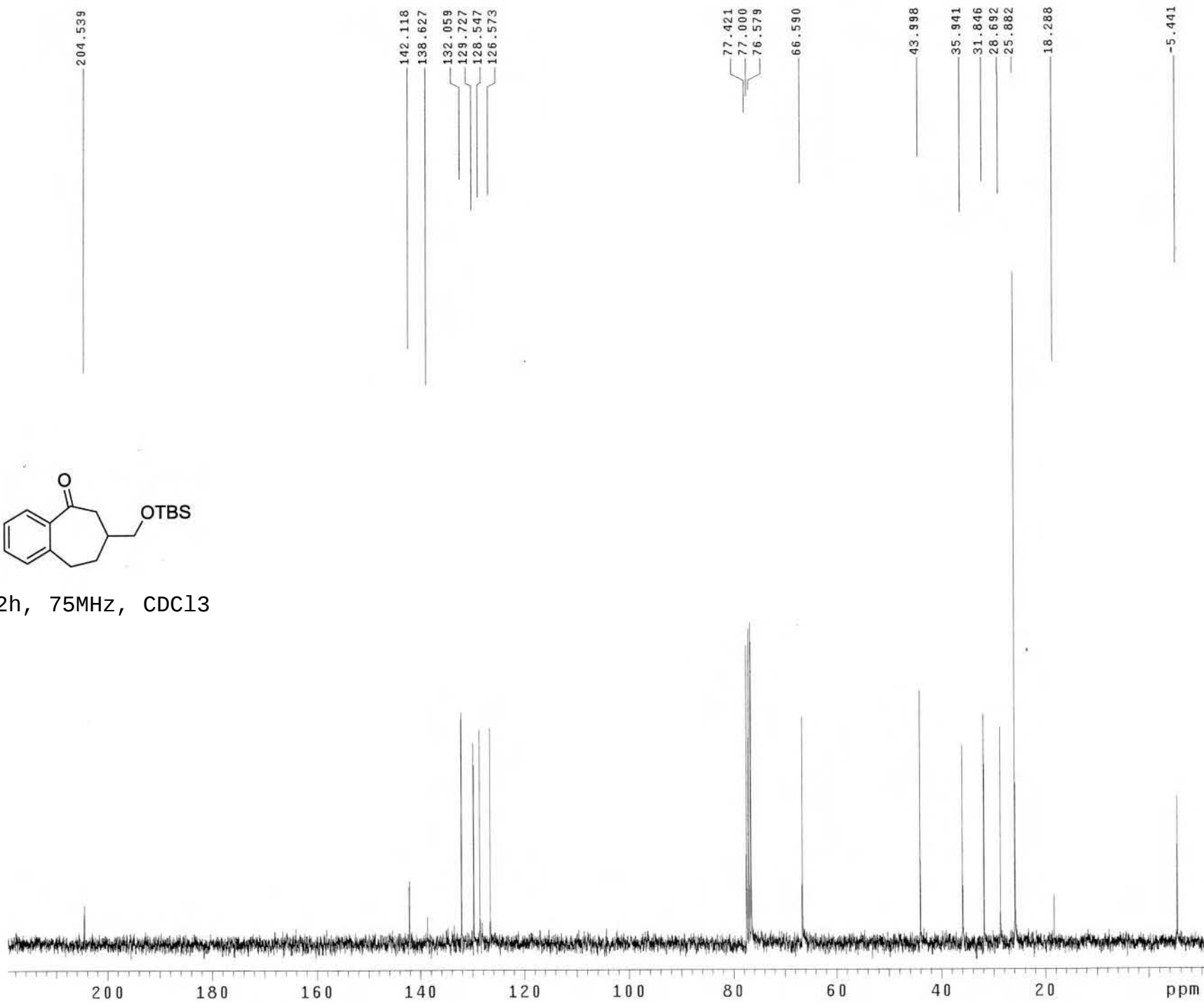


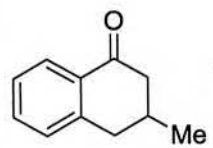
2h, 300MHz, CDC13



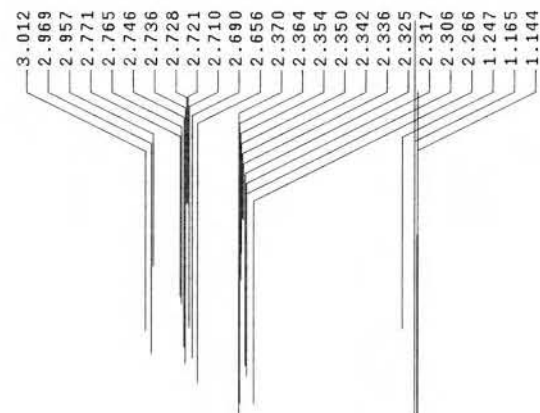
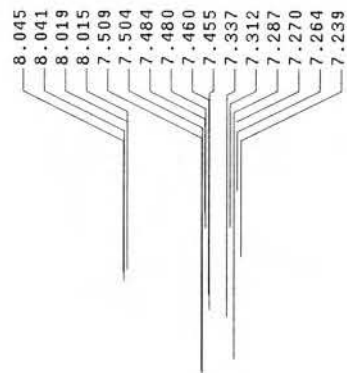
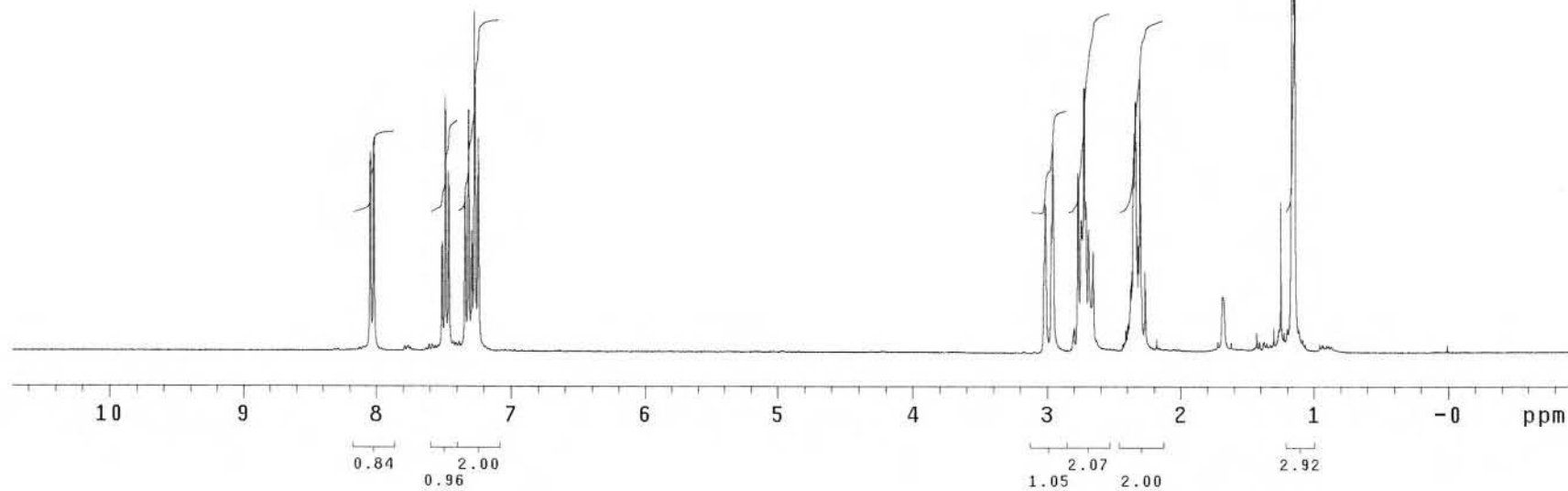


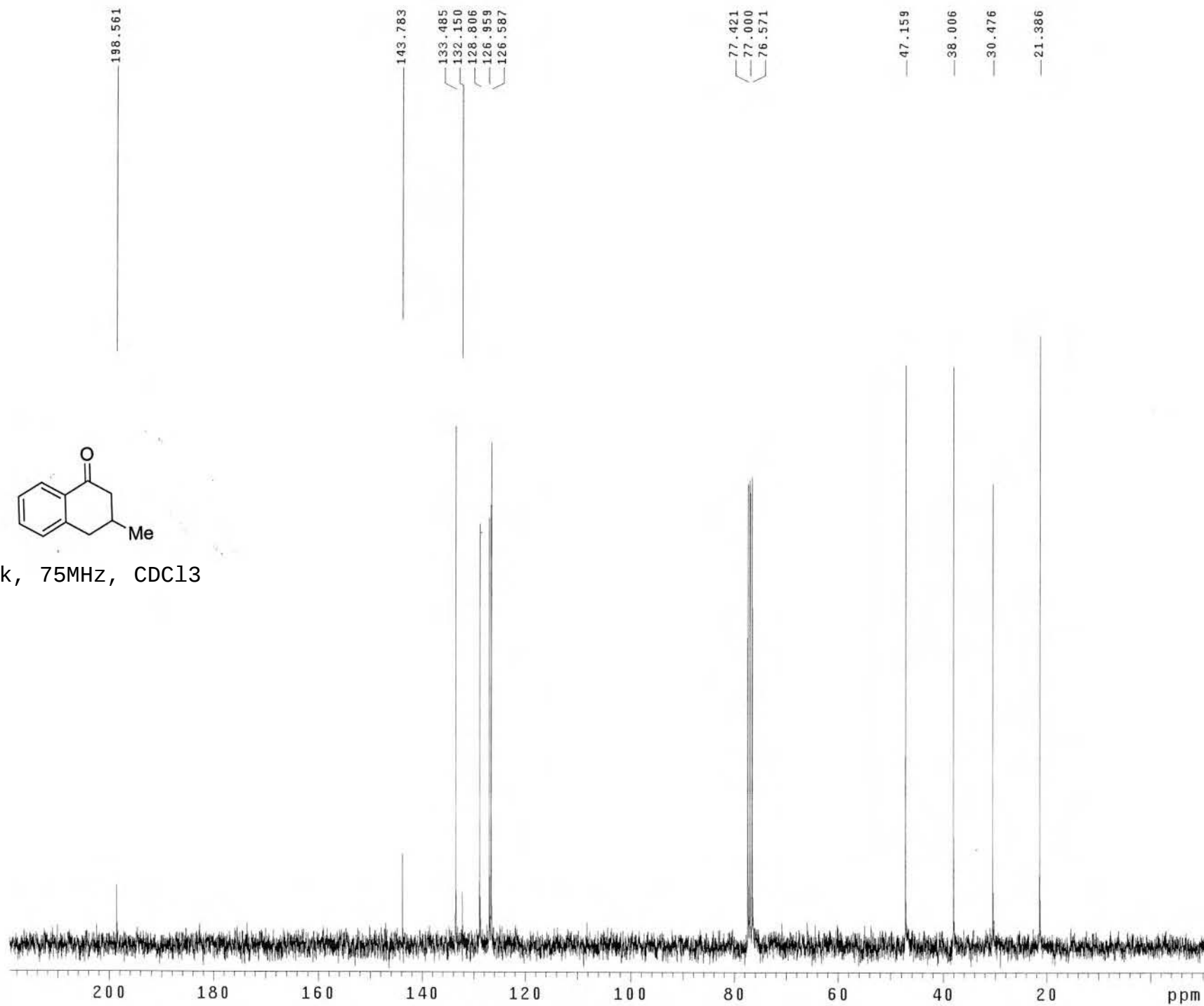
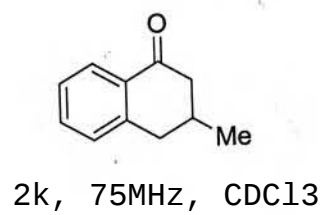
2h, 75MHz, CDC13

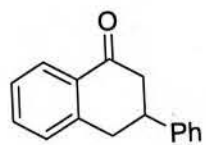




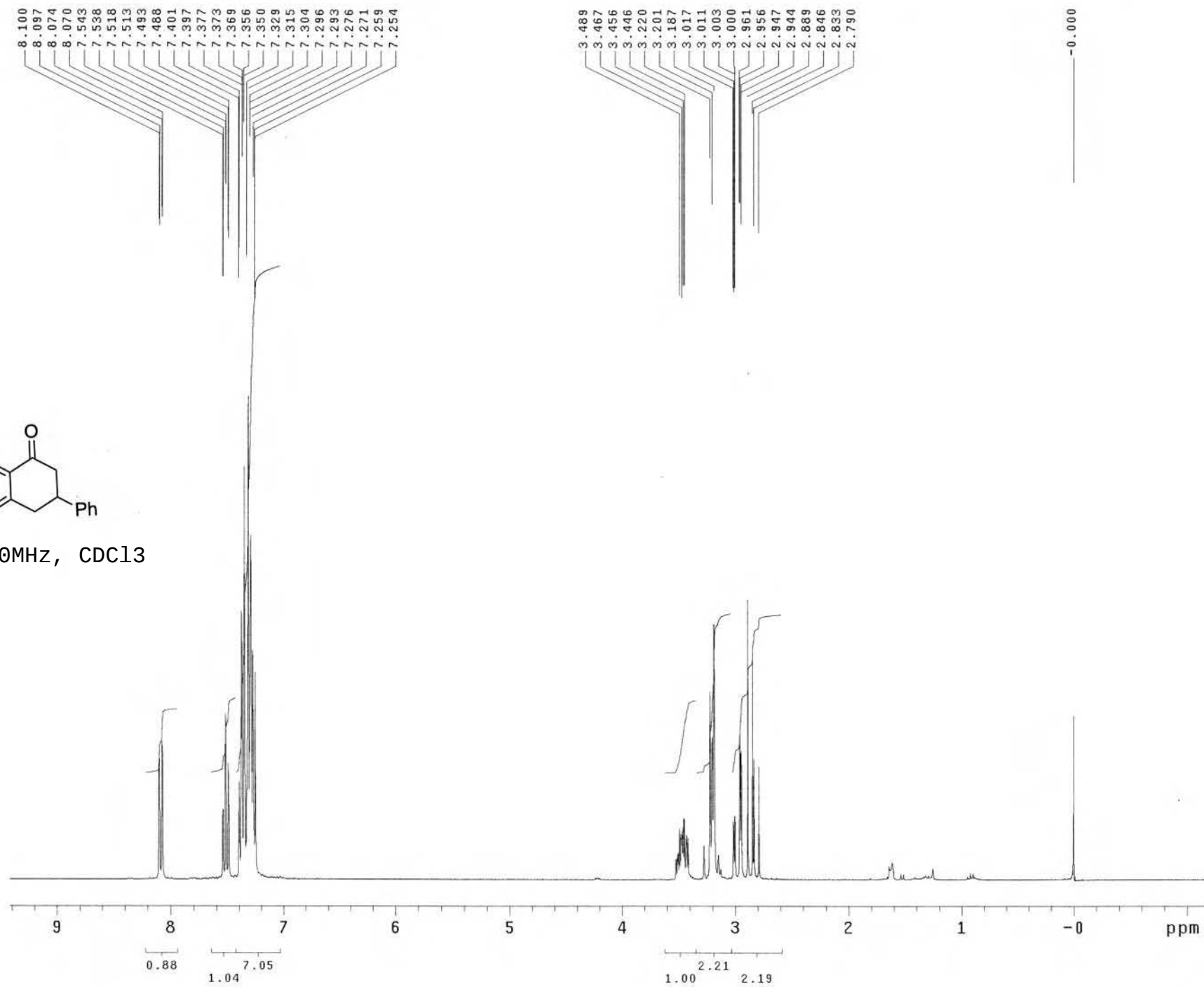
2k, 300MHz, CDCl₃

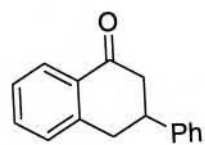




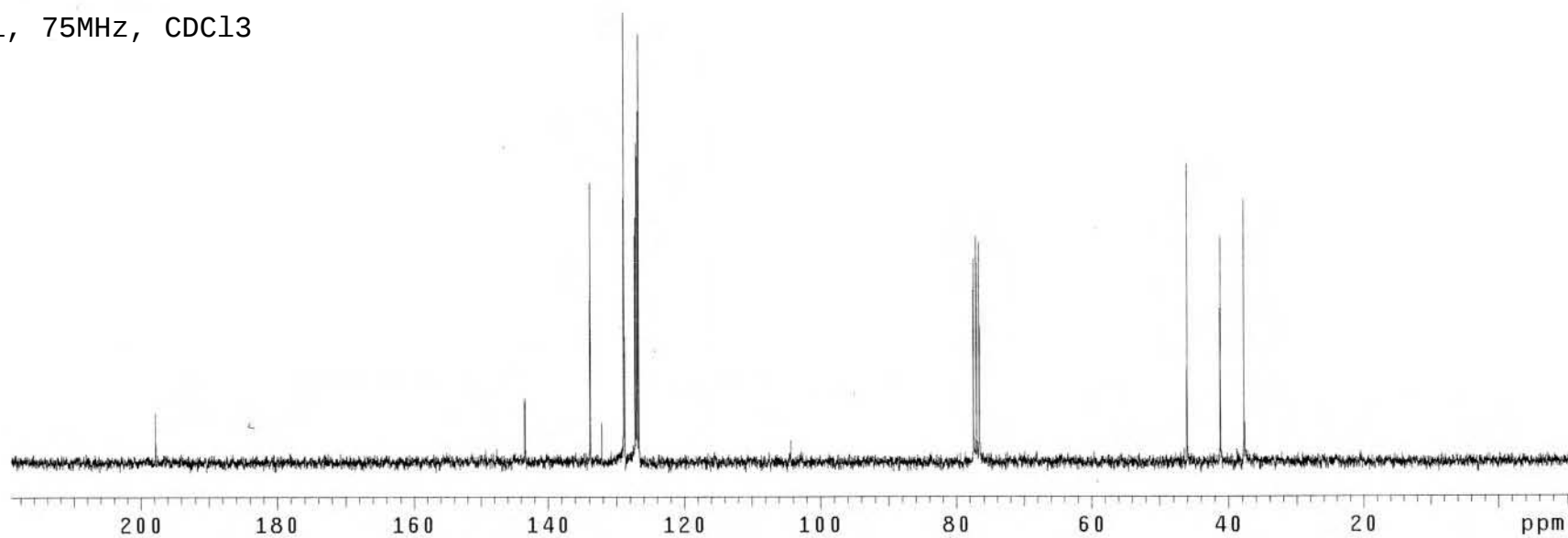


21, 300MHz, CDCl₃





21, 75MHz, CDC13

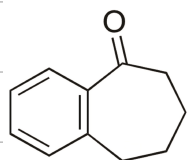


101204v3_2902.fid (2o-H)

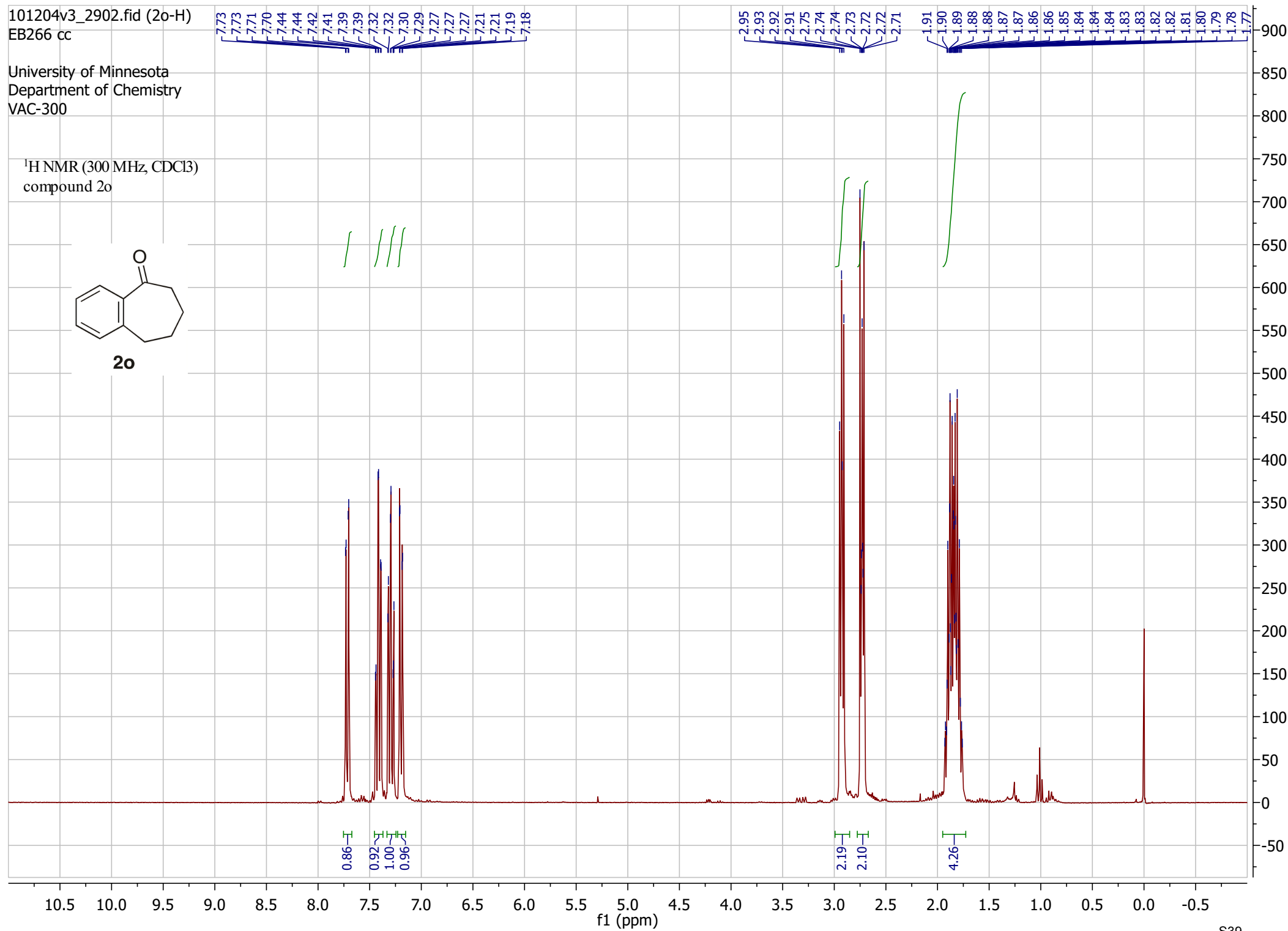
EB266 cc

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^1H NMR (300 MHz, CDCl_3)
compound 2o

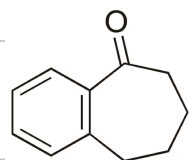


2o

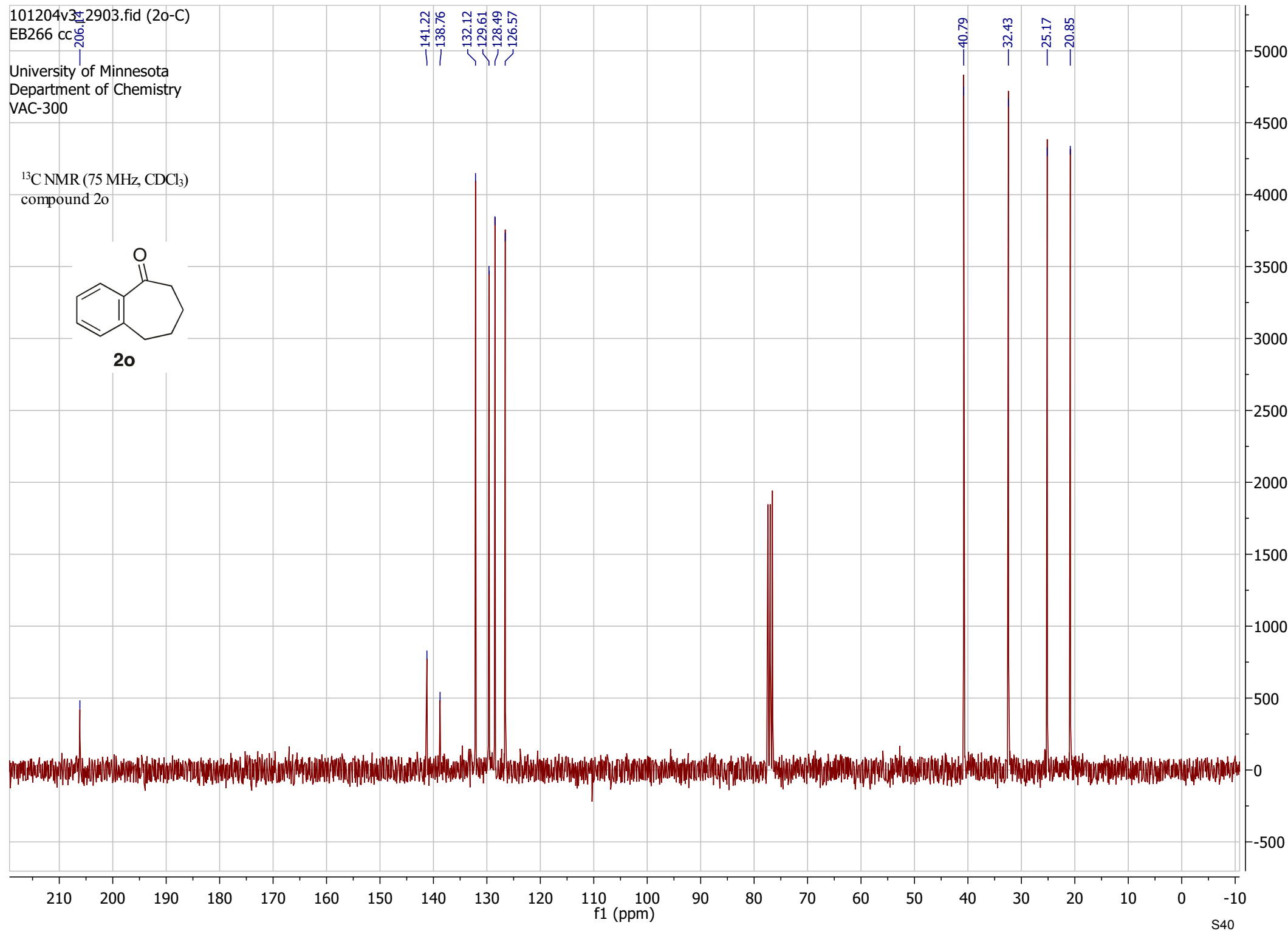


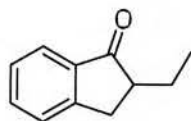
101204v3.2903.fid (2o-C)
EB266 cc
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^{13}C NMR (75 MHz, CDCl_3)
compound 2o

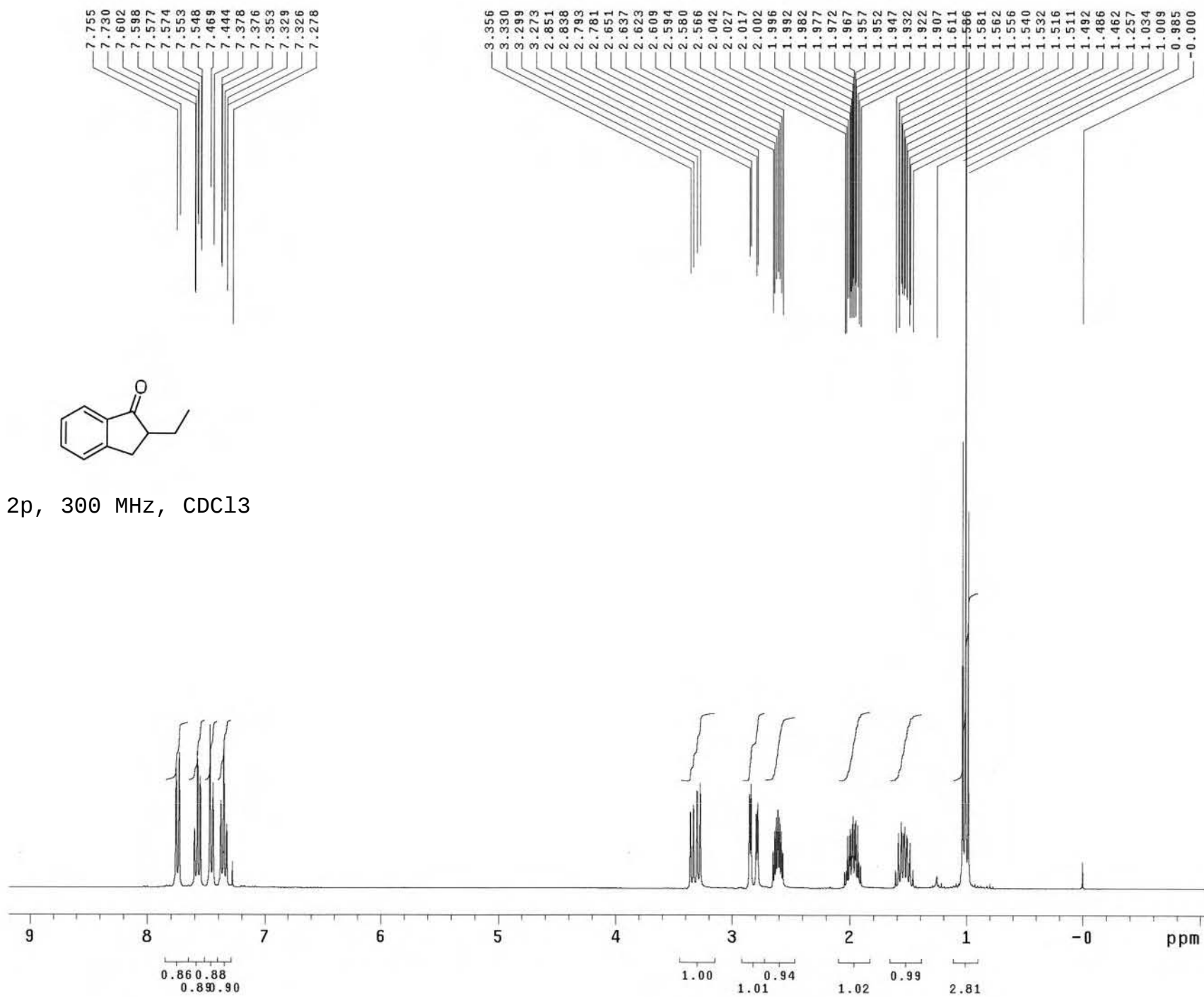


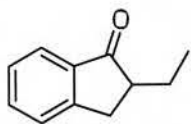
2o



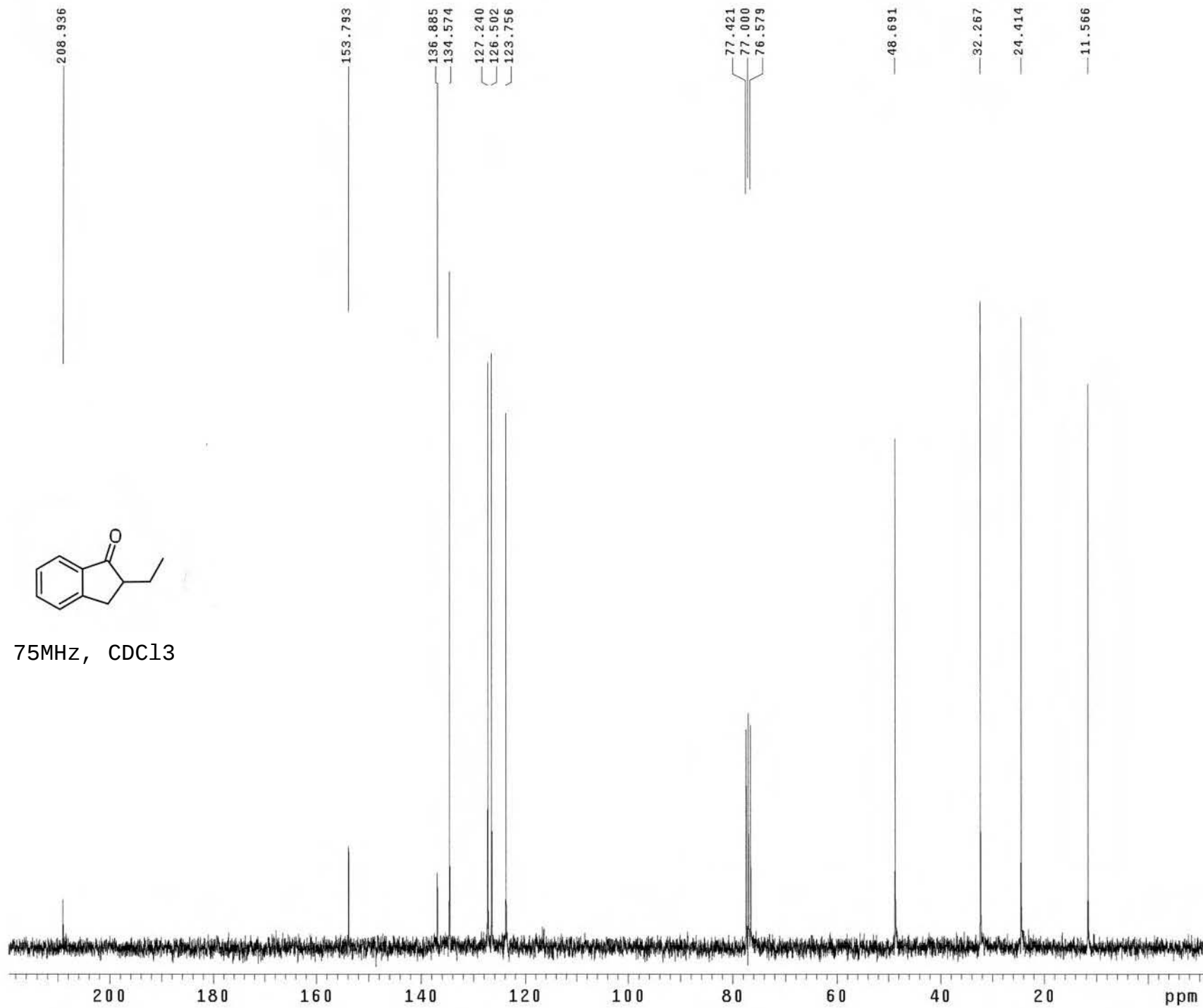


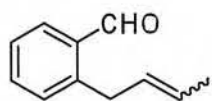
2p, 300 MHz, CDCl₃



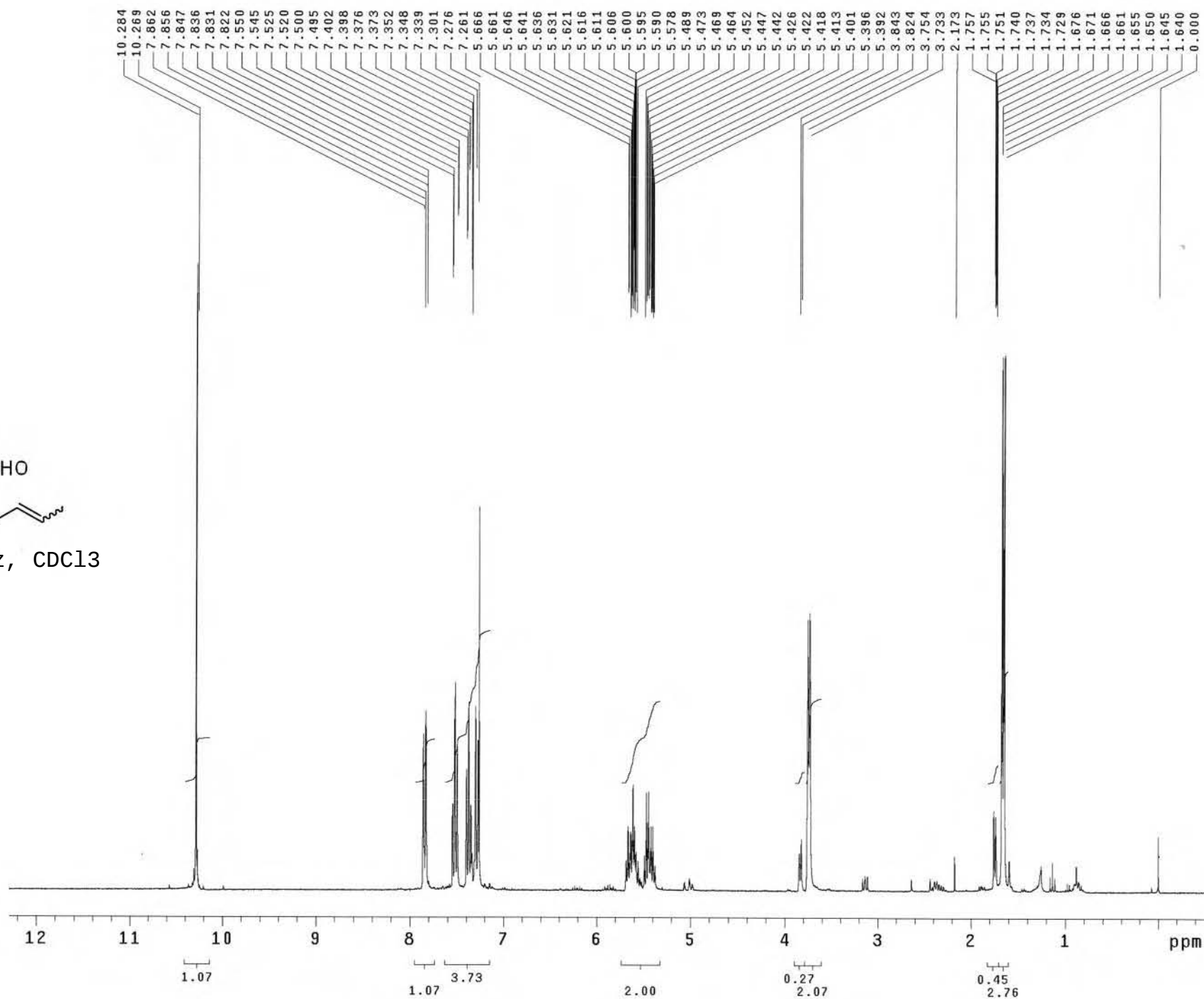


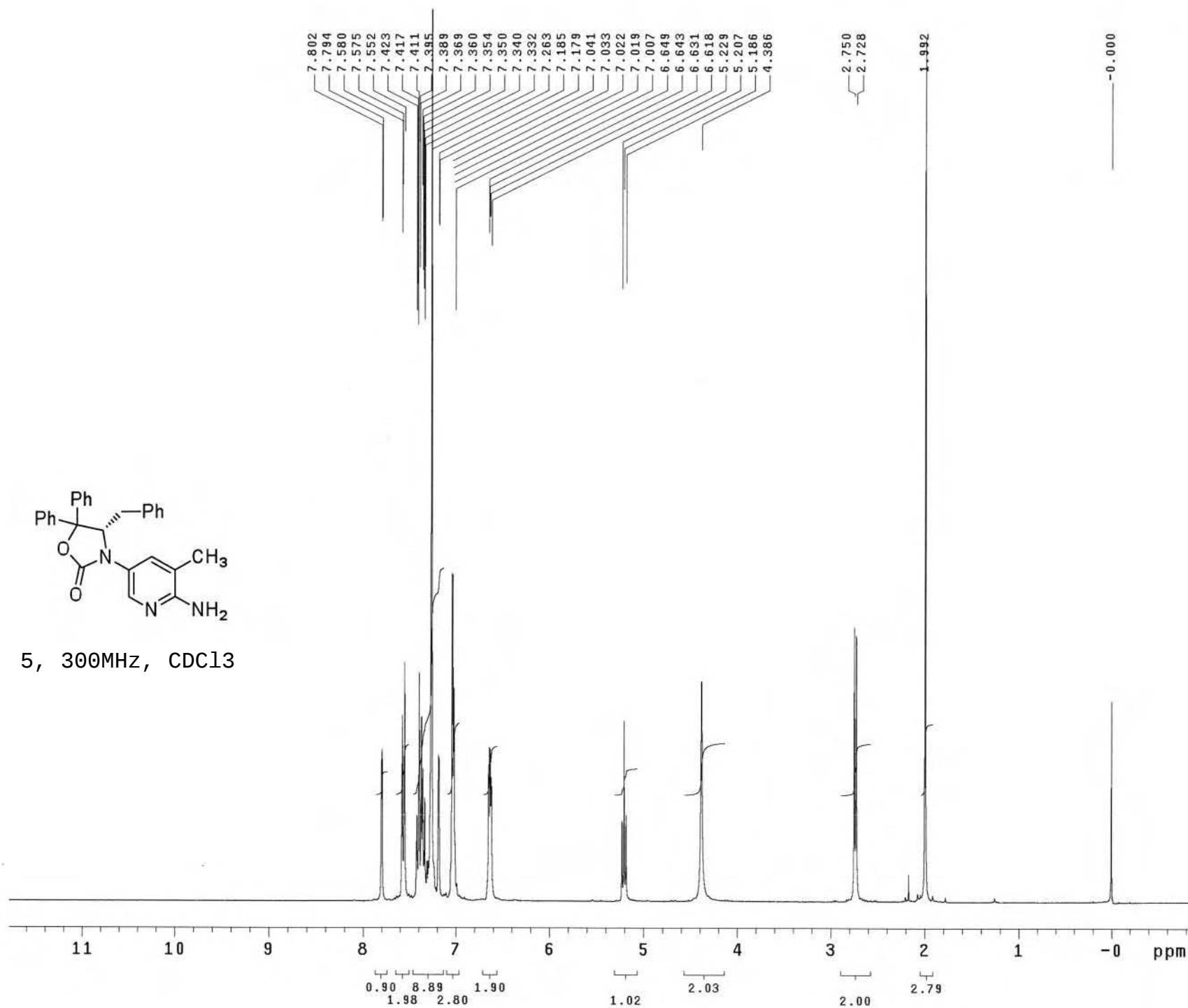
2p, 75MHz, CDCl₃

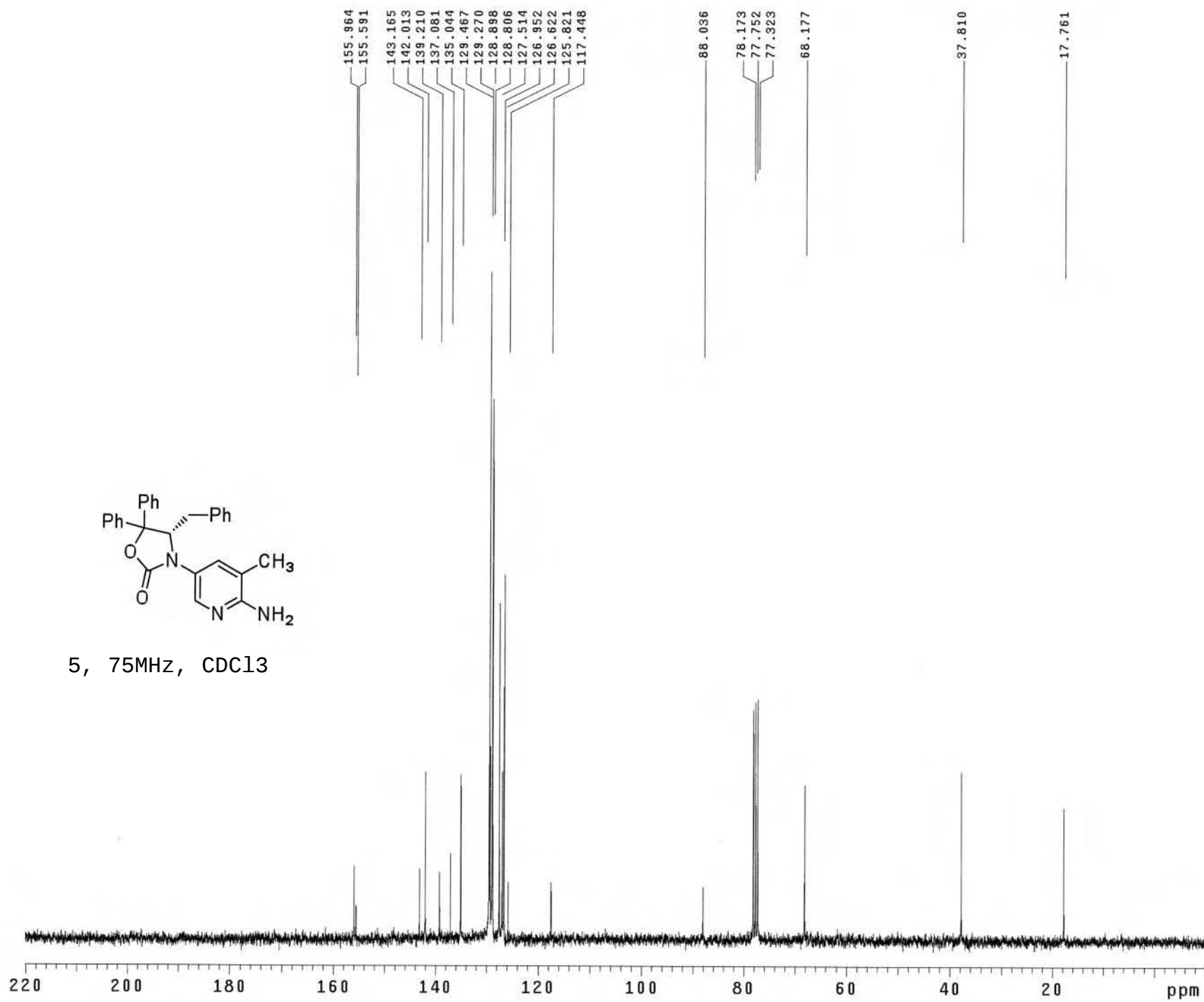




1p, 300MHz, CDC13

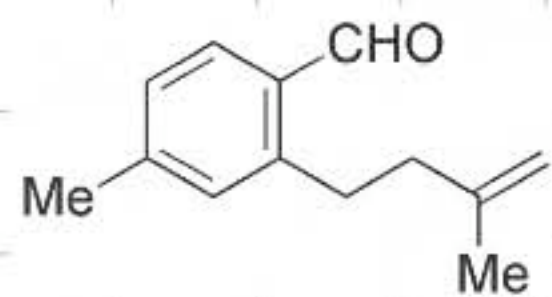




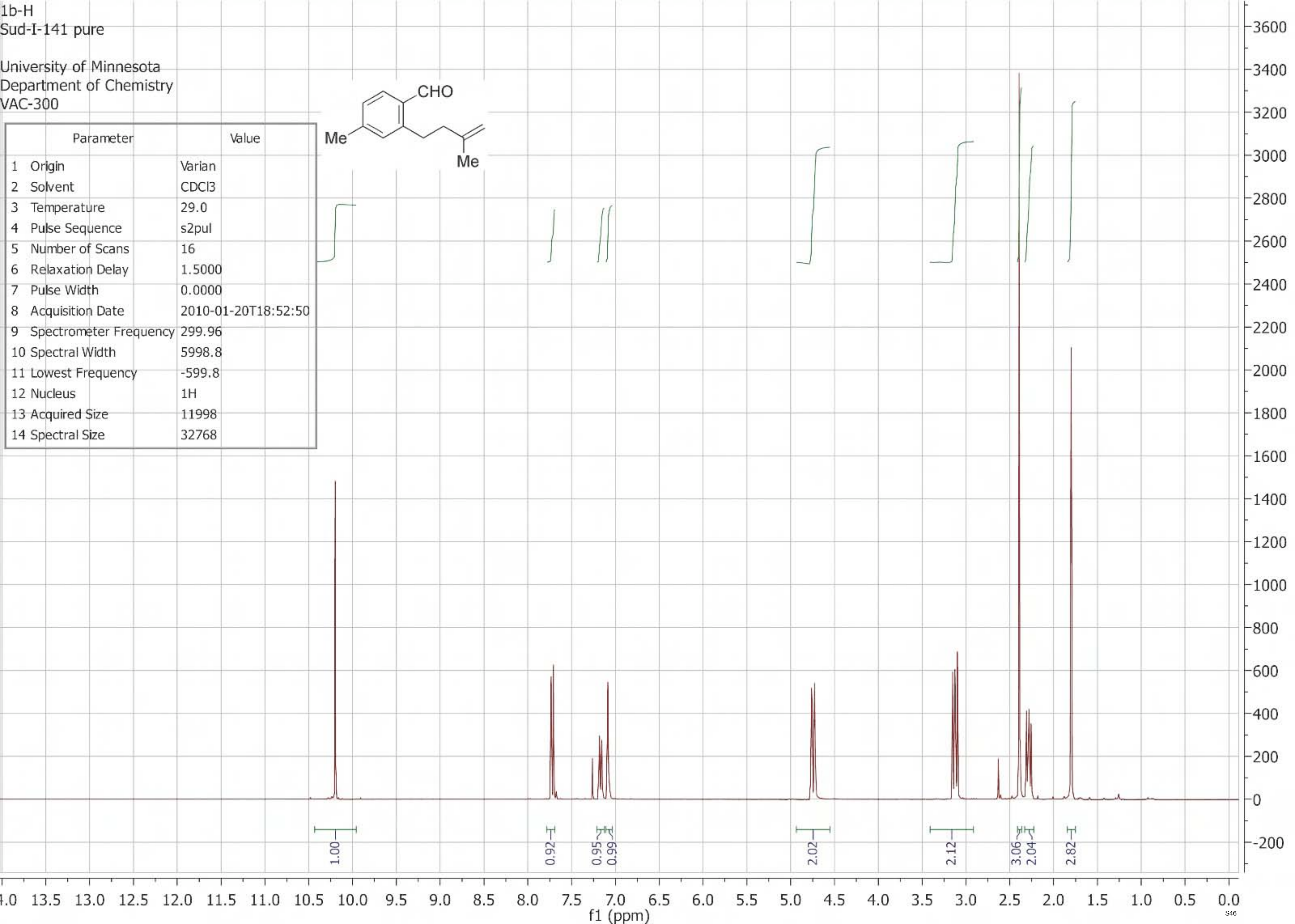


1b-H
Sud-I-141 pure

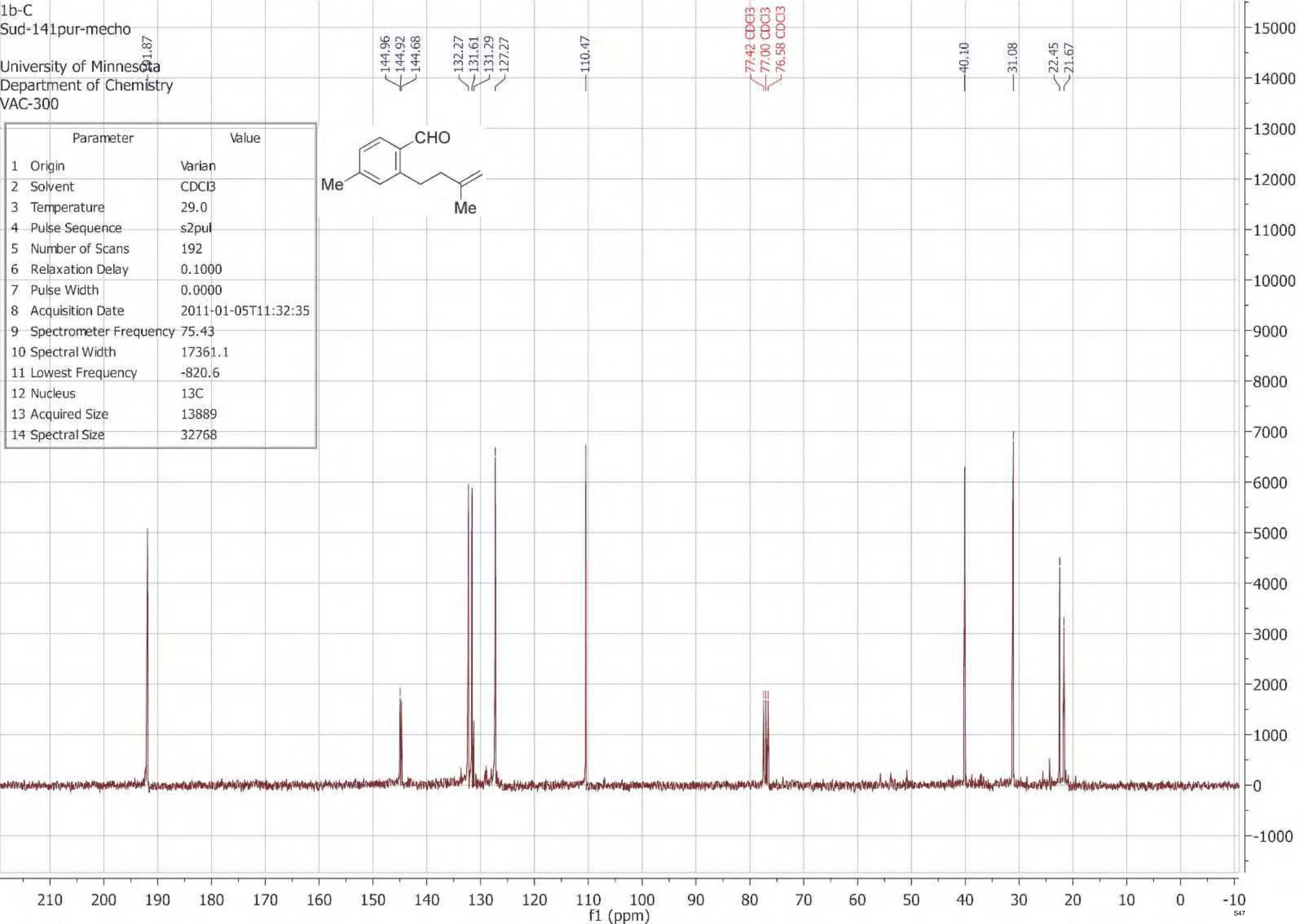
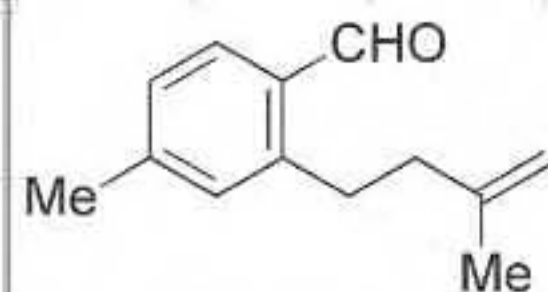
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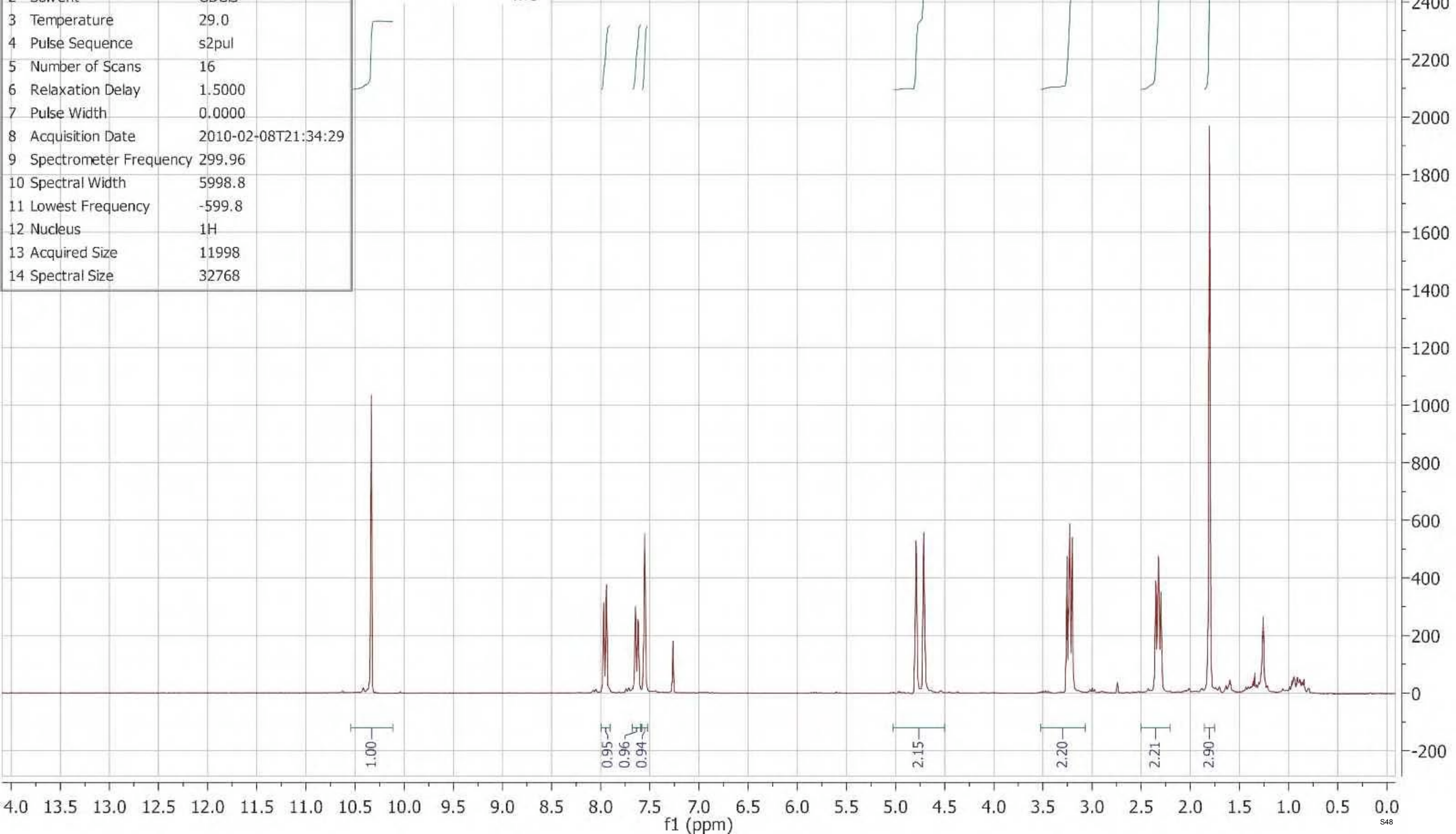
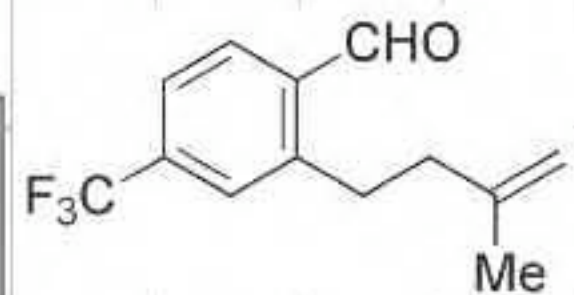
Parameter		Value
1	Origin	Varian
2	Solvent	CDCl3
3	Temperature	29.0
4	Pulse Sequence	s2pul
5	Number of Scans	16
6	Relaxation Delay	1.5000
7	Pulse Width	0.0000
8	Acquisition Date	2010-01-20T18:52:50
9	Spectrometer Frequency	299.96
10	Spectral Width	5998.8
11	Lowest Frequency	-599.8
12	Nucleus	1H
13	Acquired Size	11998
14	Spectral Size	32768



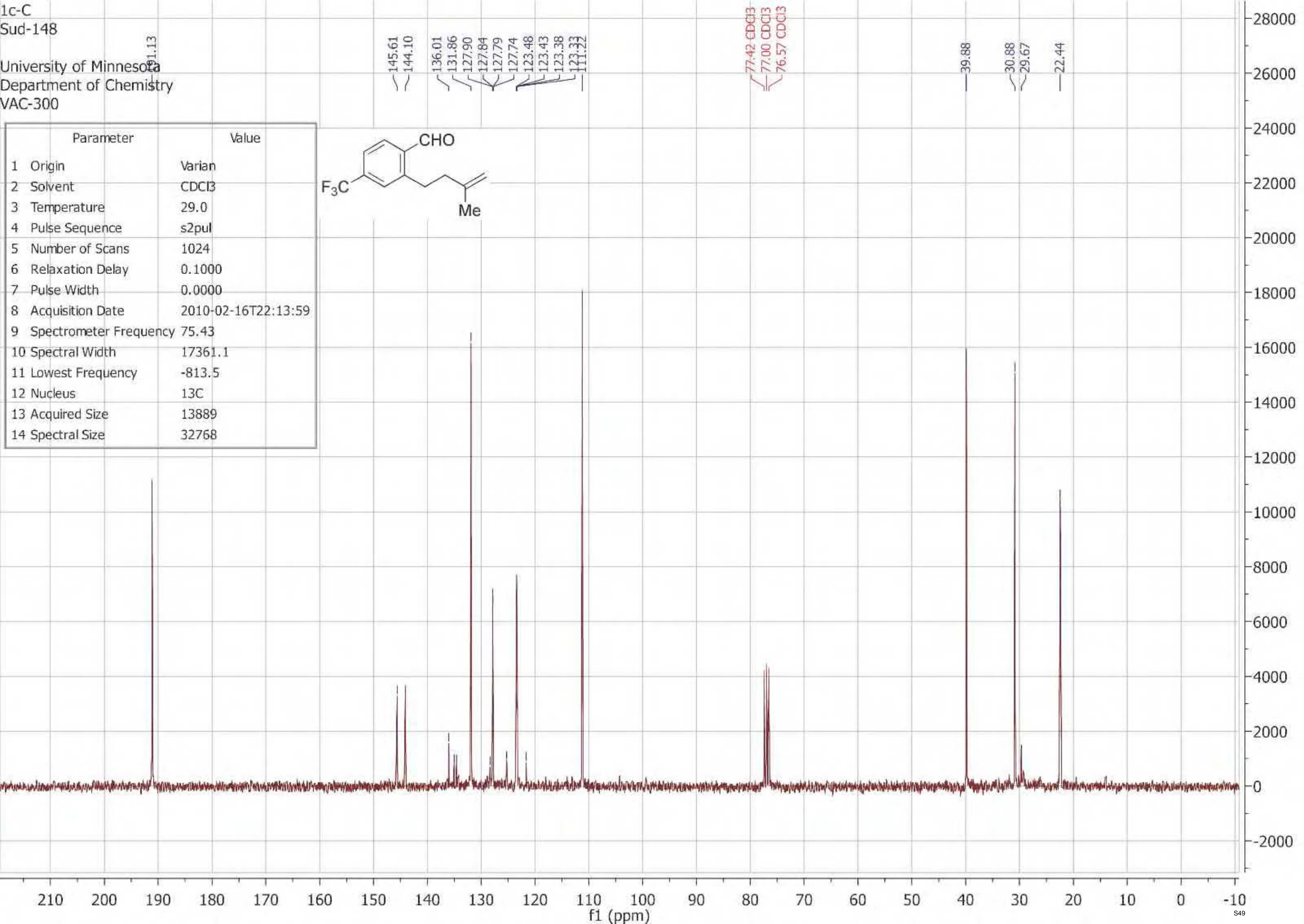
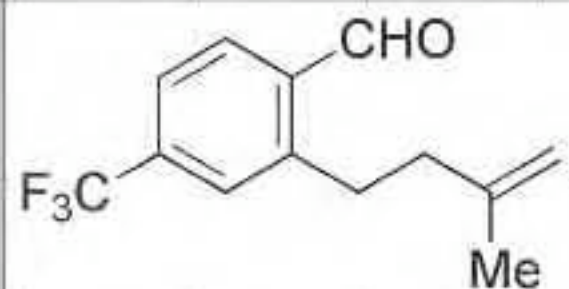
Parameter		Value
1	Origin	Varian
2	Solvent	CDCl3
3	Temperature	29.0
4	Pulse Sequence	s2pul
5	Number of Scans	192
6	Relaxation Delay	0.1000
7	Pulse Width	0.0000
8	Acquisition Date	2011-01-05T11:32:35
9	Spectrometer Frequency	75.43
10	Spectral Width	17361.1
11	Lowest Frequency	-820.6
12	Nucleus	13C
13	Acquired Size	13889
14	Spectral Size	32768



Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	16
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2010-02-08T21:34:29
9 Spectrometer Frequency	299.96
10 Spectral Width	5998.8
11 Lowest Frequency	-599.8
12 Nucleus	1H
13 Acquired Size	11998
14 Spectral Size	32768



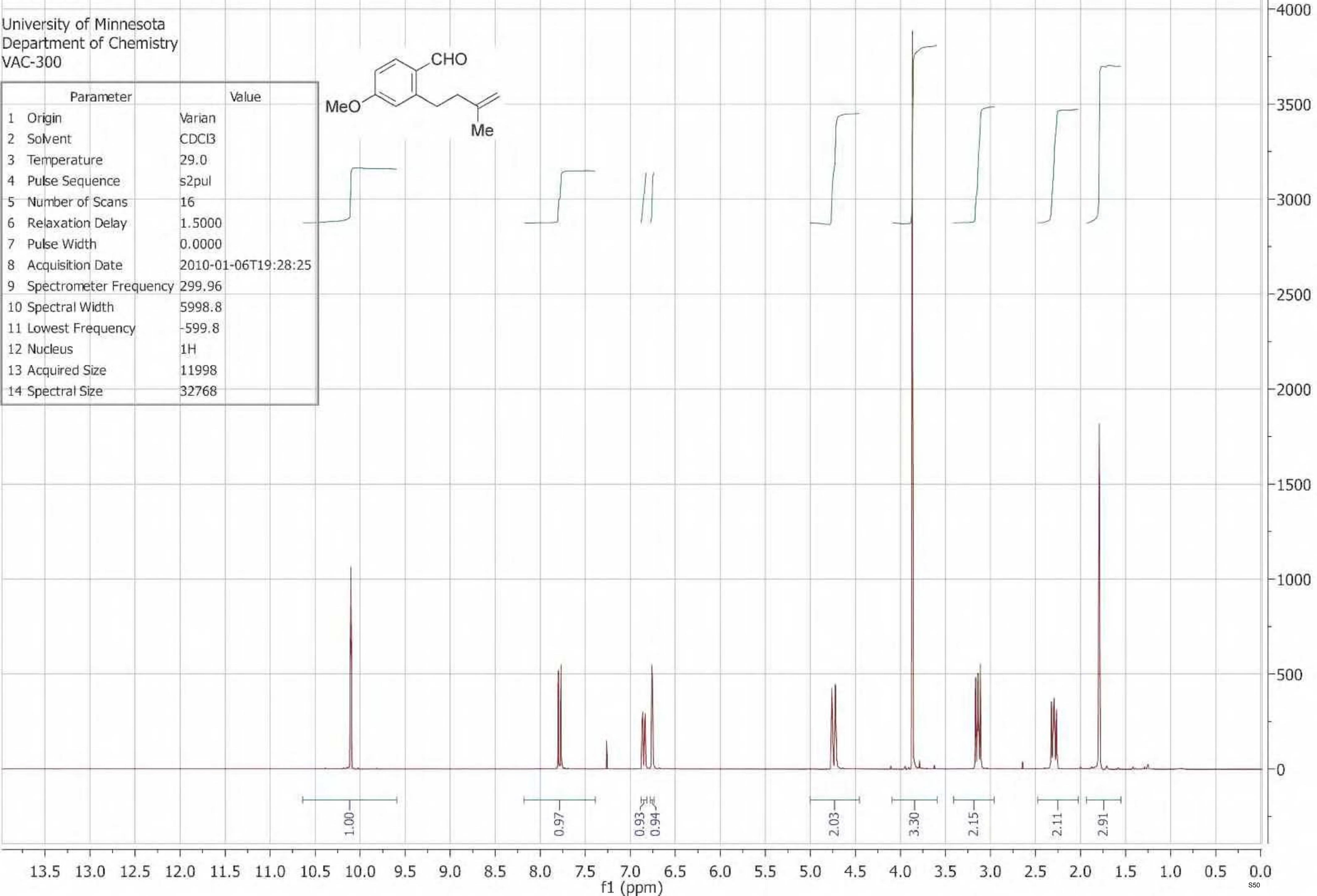
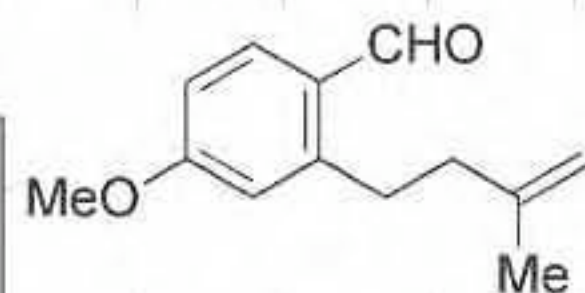
Parameter	Value
1 Origin	Varian
2 Solvent	CDCl ₃
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	1024
6 Relaxation Delay	0.1000
7 Pulse Width	0.0000
8 Acquisition Date	2010-02-16T22:13:59
9 Spectrometer Frequency	75.43
10 Spectral Width	17361.1
11 Lowest Frequency	-813.5
12 Nucleus	¹³ C
13 Acquired Size	13889
14 Spectral Size	32768



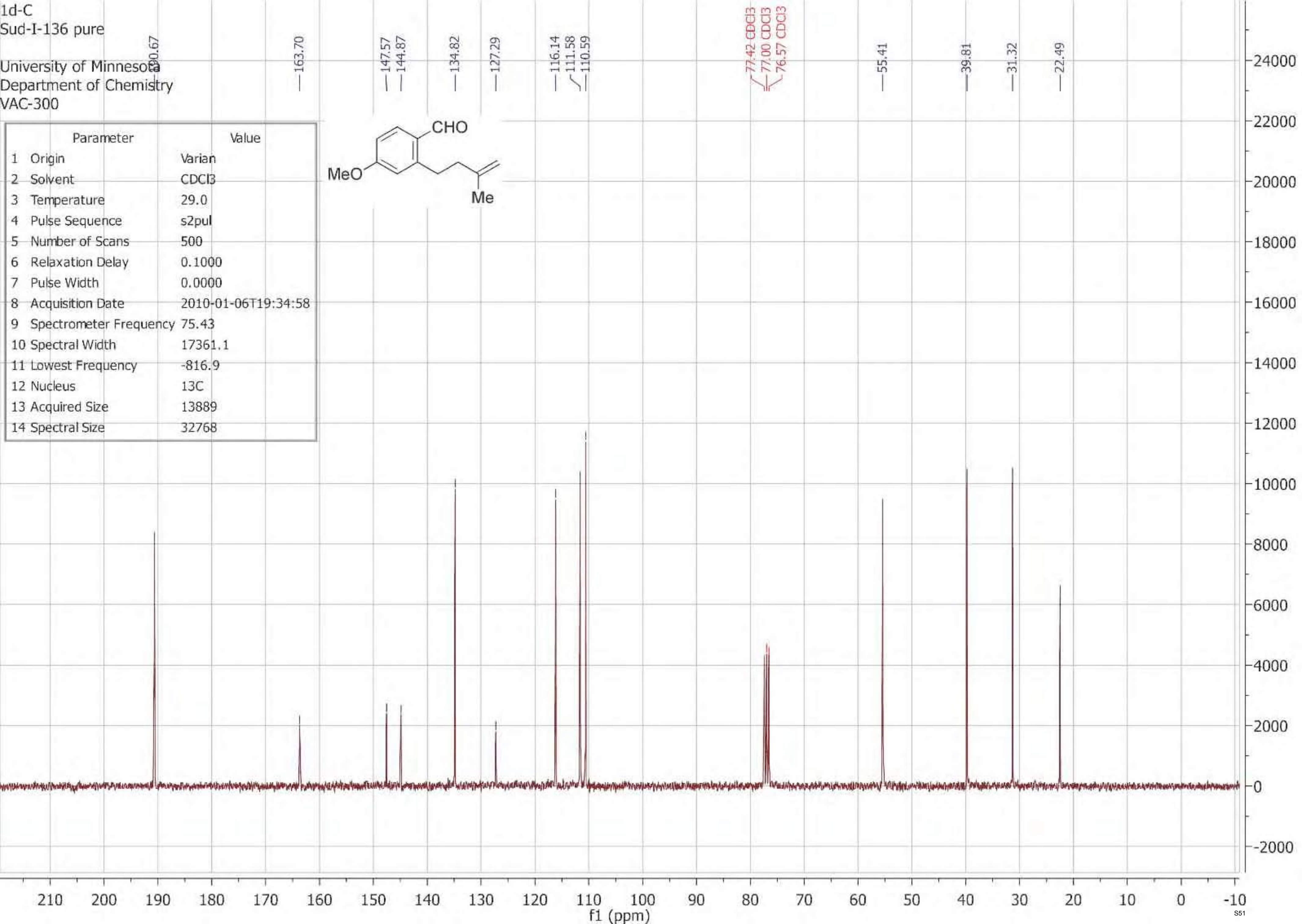
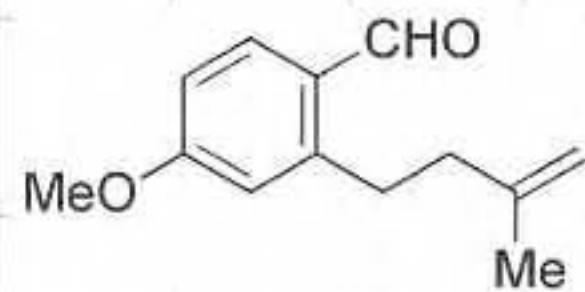
1d-¹H
Sud-I-136 pure

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Parameter	Value
1 Origin	Varian
2 Solvent	CDCl ₃
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	16
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2010-01-06T19:28:25
9 Spectrometer Frequency	299.96
10 Spectral Width	5998.8
11 Lowest Frequency	-599.8
12 Nucleus	¹ H
13 Acquired Size	11998
14 Spectral Size	32768

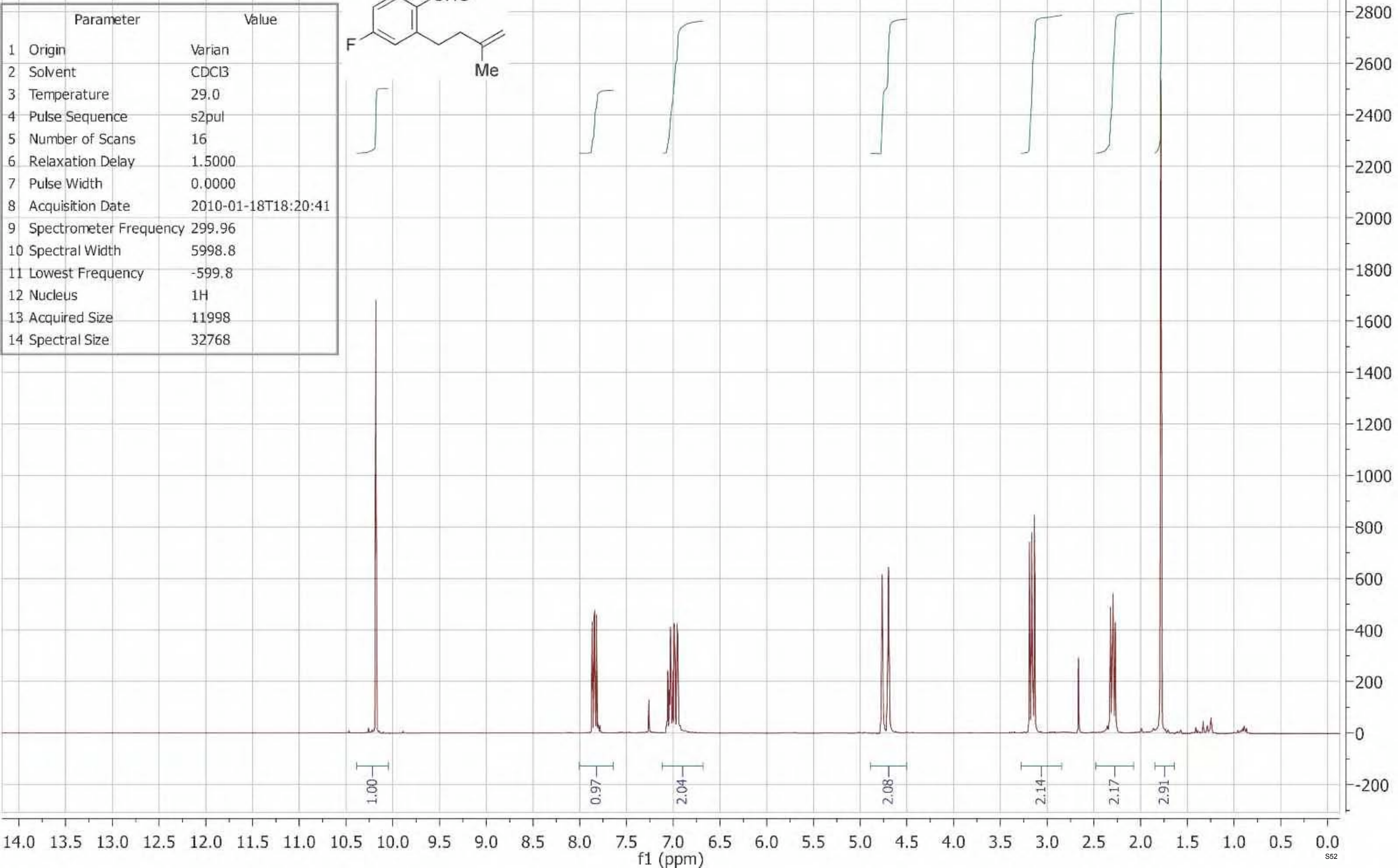
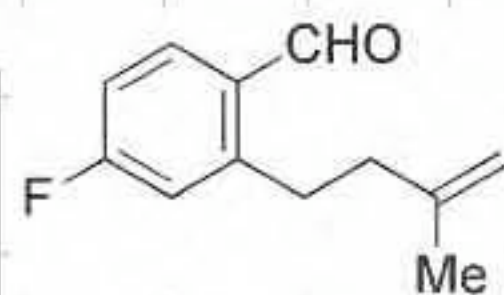


Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	500
6 Relaxation Delay	0.1000
7 Pulse Width	0.0000
8 Acquisition Date	2010-01-06T19:34:58
9 Spectrometer Frequency	75.43
10 Spectral Width	17361.1
11 Lowest Frequency	-816.9
12 Nucleus	13C
13 Acquired Size	13889
14 Spectral Size	32768

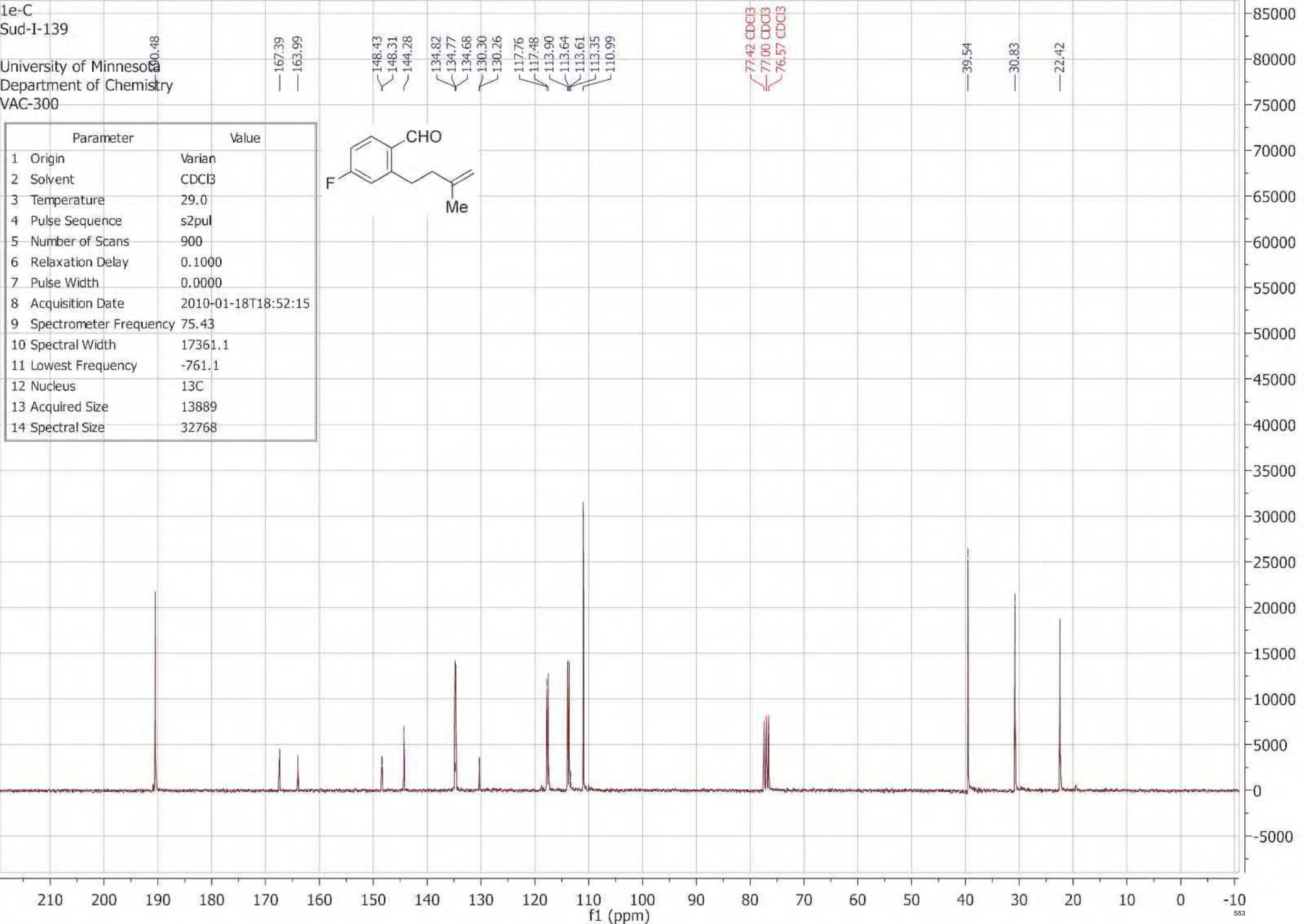
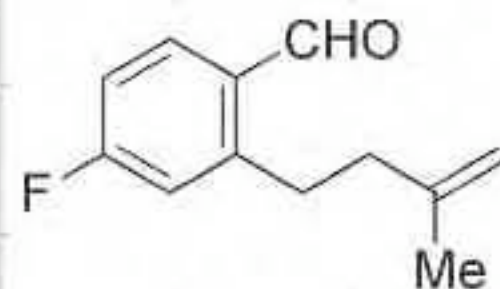


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Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	16
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2010-01-18T18:20:41
9 Spectrometer Frequency	299.96
10 Spectral Width	5998.8
11 Lowest Frequency	-599.8
12 Nucleus	1H
13 Acquired Size	11998
14 Spectral Size	32768



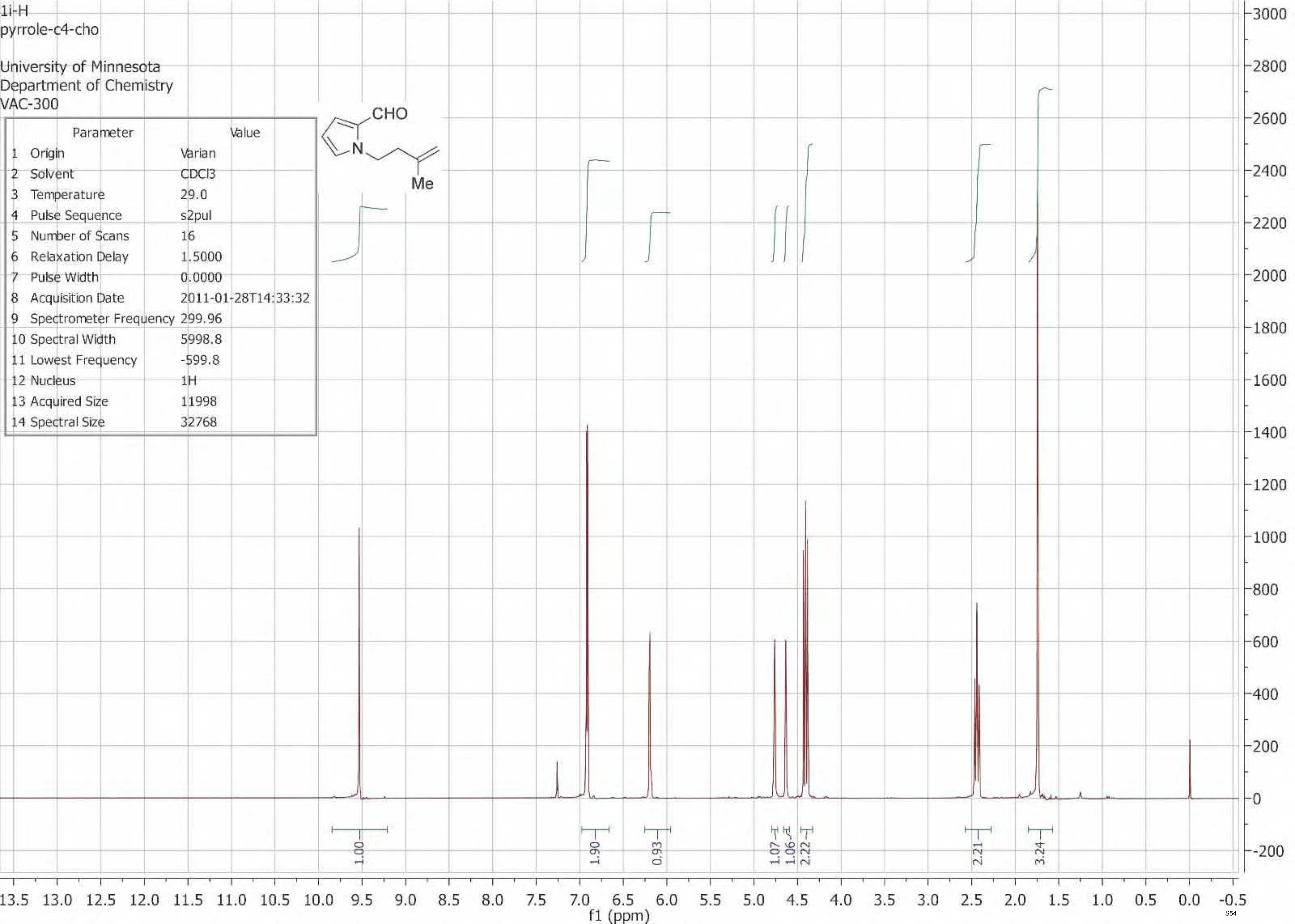
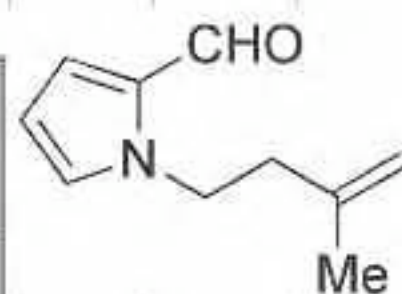
Parameter	Value
1 Origin	Varian
2 Solvent	CDCl ₃
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	900
6 Relaxation Delay	0.1000
7 Pulse Width	0.0000
8 Acquisition Date	2010-01-18T18:52:15
9 Spectrometer Frequency	75.43
10 Spectral Width	17361.1
11 Lowest Frequency	-761.1
12 Nucleus	¹³ C
13 Acquired Size	13889
14 Spectral Size	32768

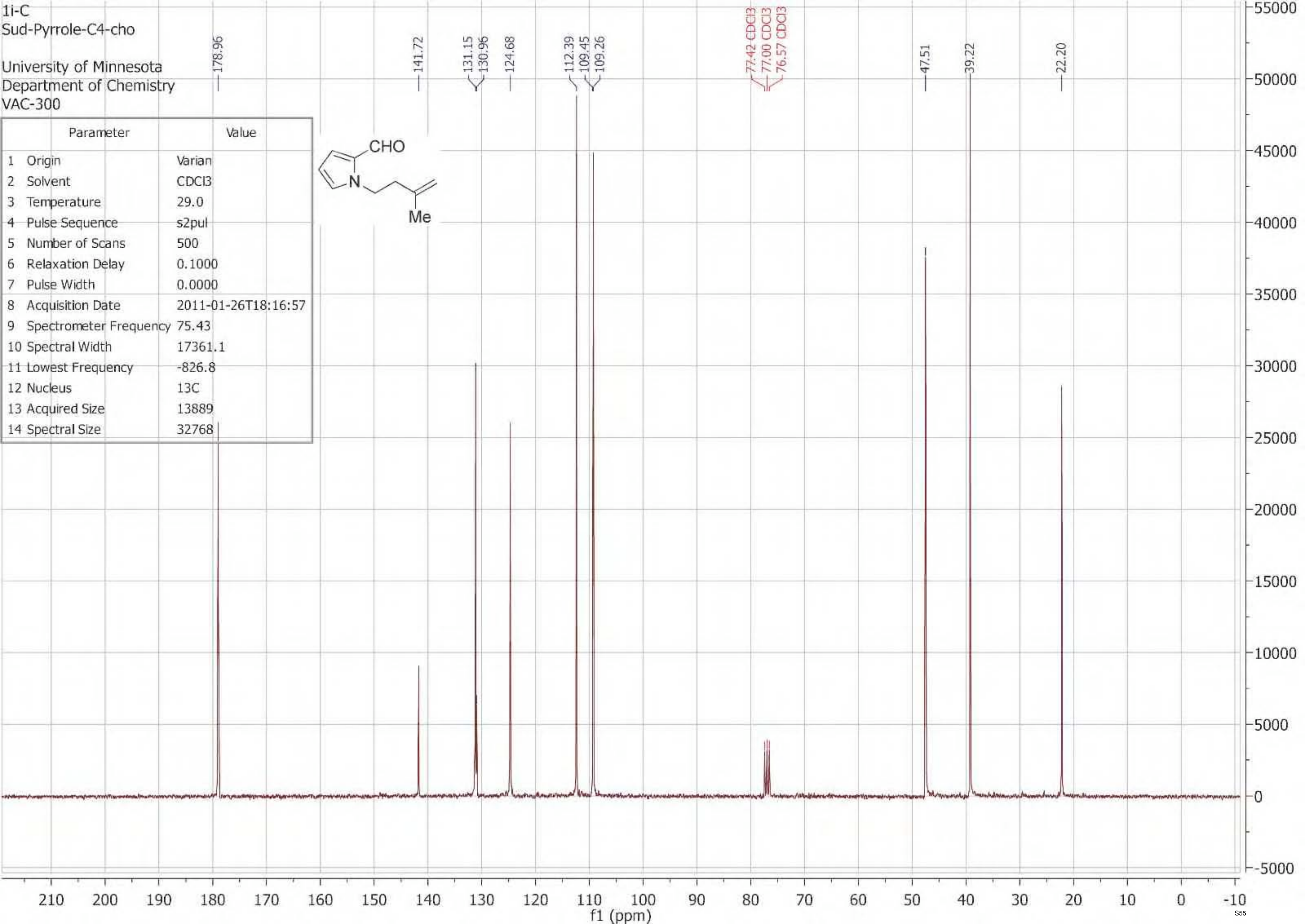


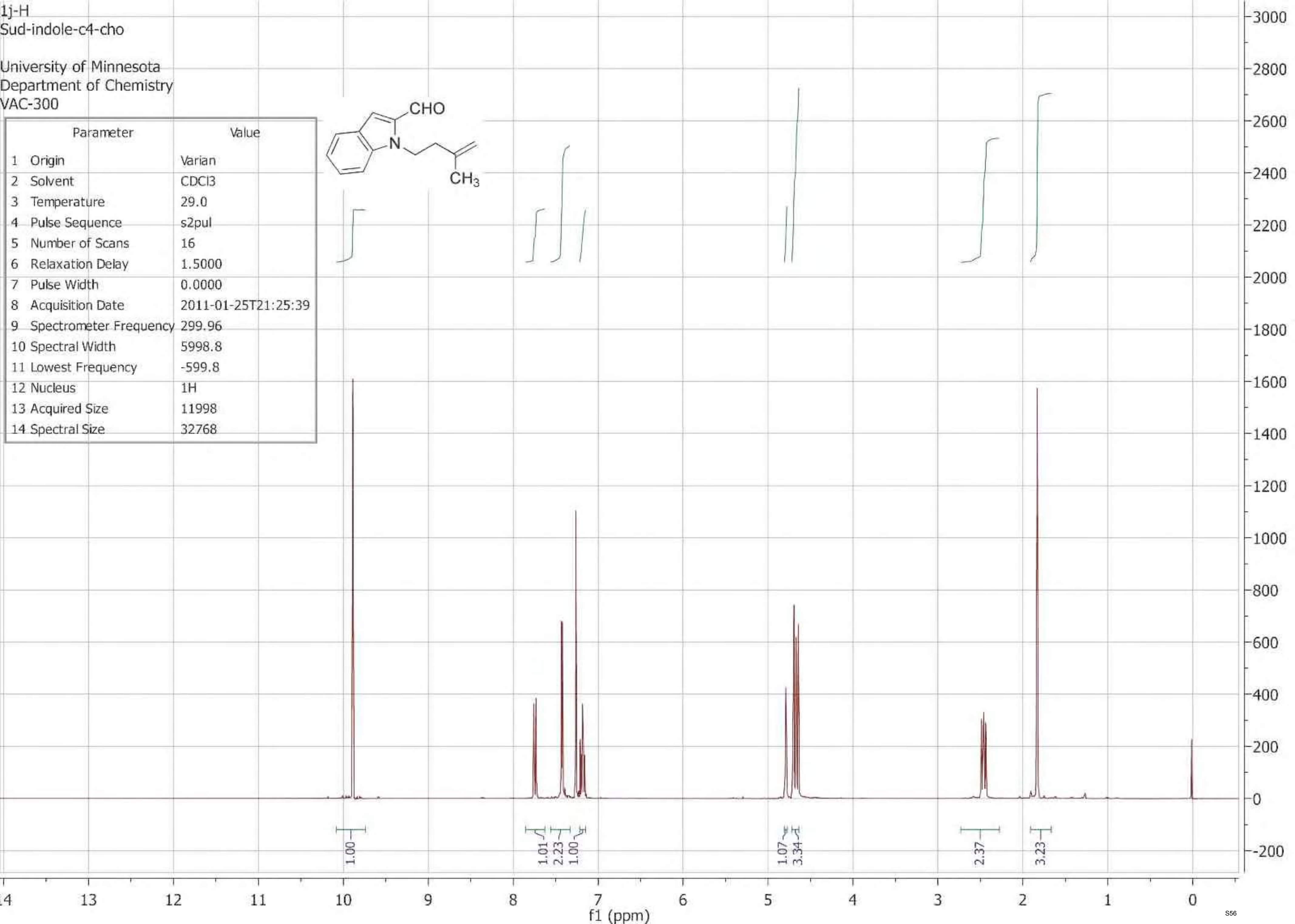
¹H
pyrrole-c4-cho

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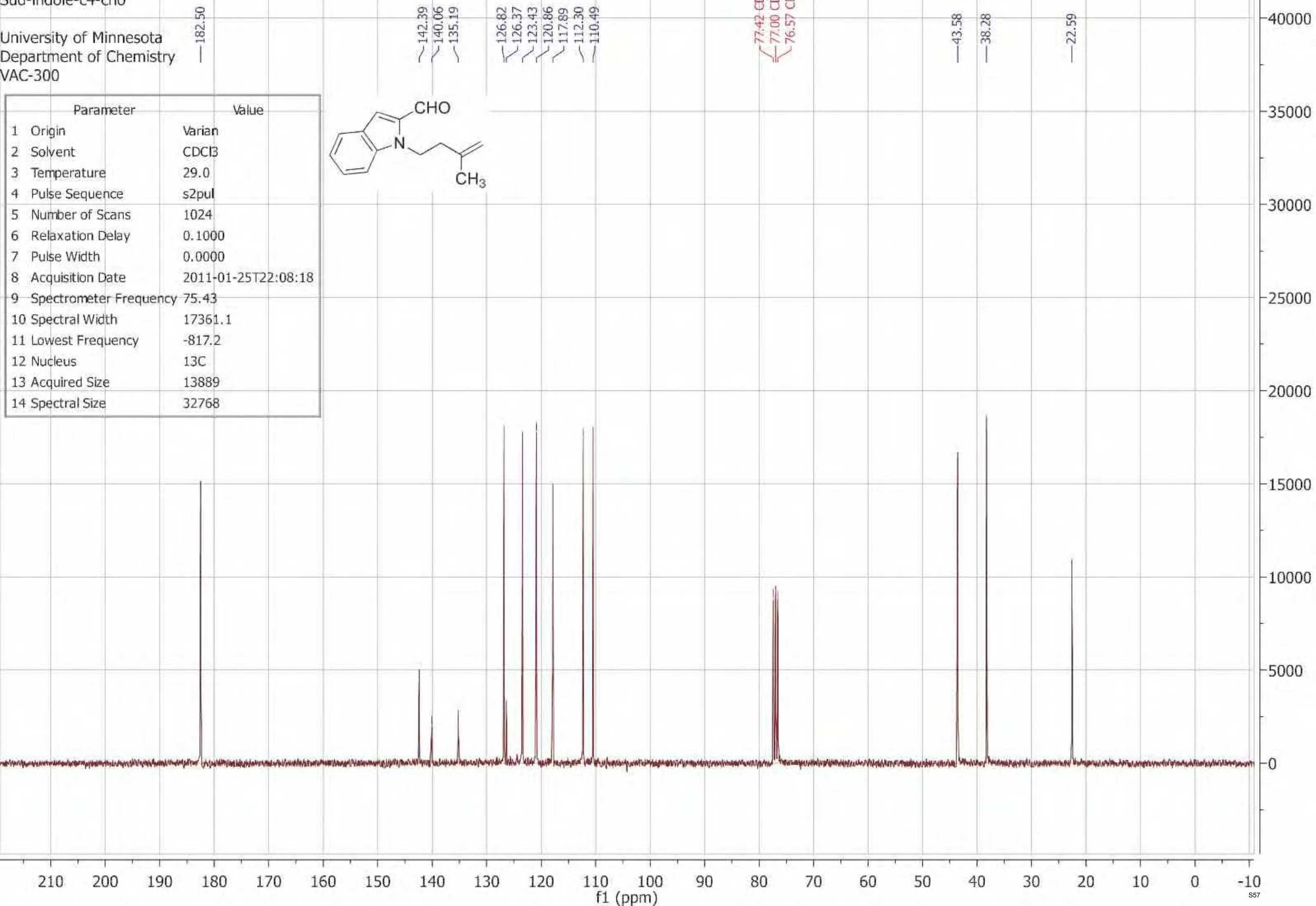
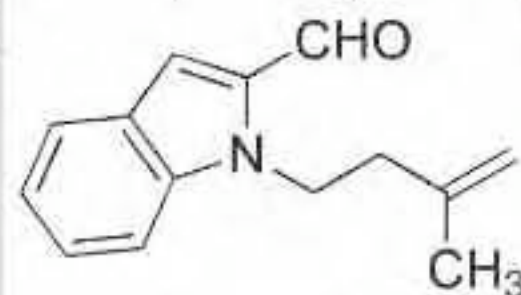
Parameter	Value
1 Origin	Varian
2 Solvent	CDCl ₃
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	16
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2011-01-28T14:33:32
9 Spectrometer Frequency	299.96
10 Spectral Width	5998.8
11 Lowest Frequency	-599.8
12 Nucleus	¹ H
13 Acquired Size	11998
14 Spectral Size	32768







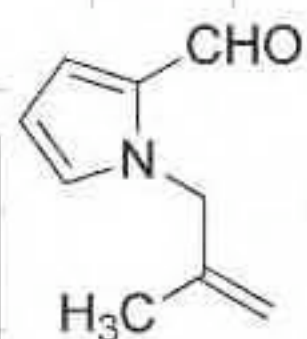
Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	1024
6 Relaxation Delay	0.1000
7 Pulse Width	0.0000
8 Acquisition Date	2011-01-25T22:08:18
9 Spectrometer Frequency	75.43
10 Spectral Width	17361.1
11 Lowest Frequency	-817.2
12 Nucleus	13C
13 Acquired Size	13889
14 Spectral Size	32768



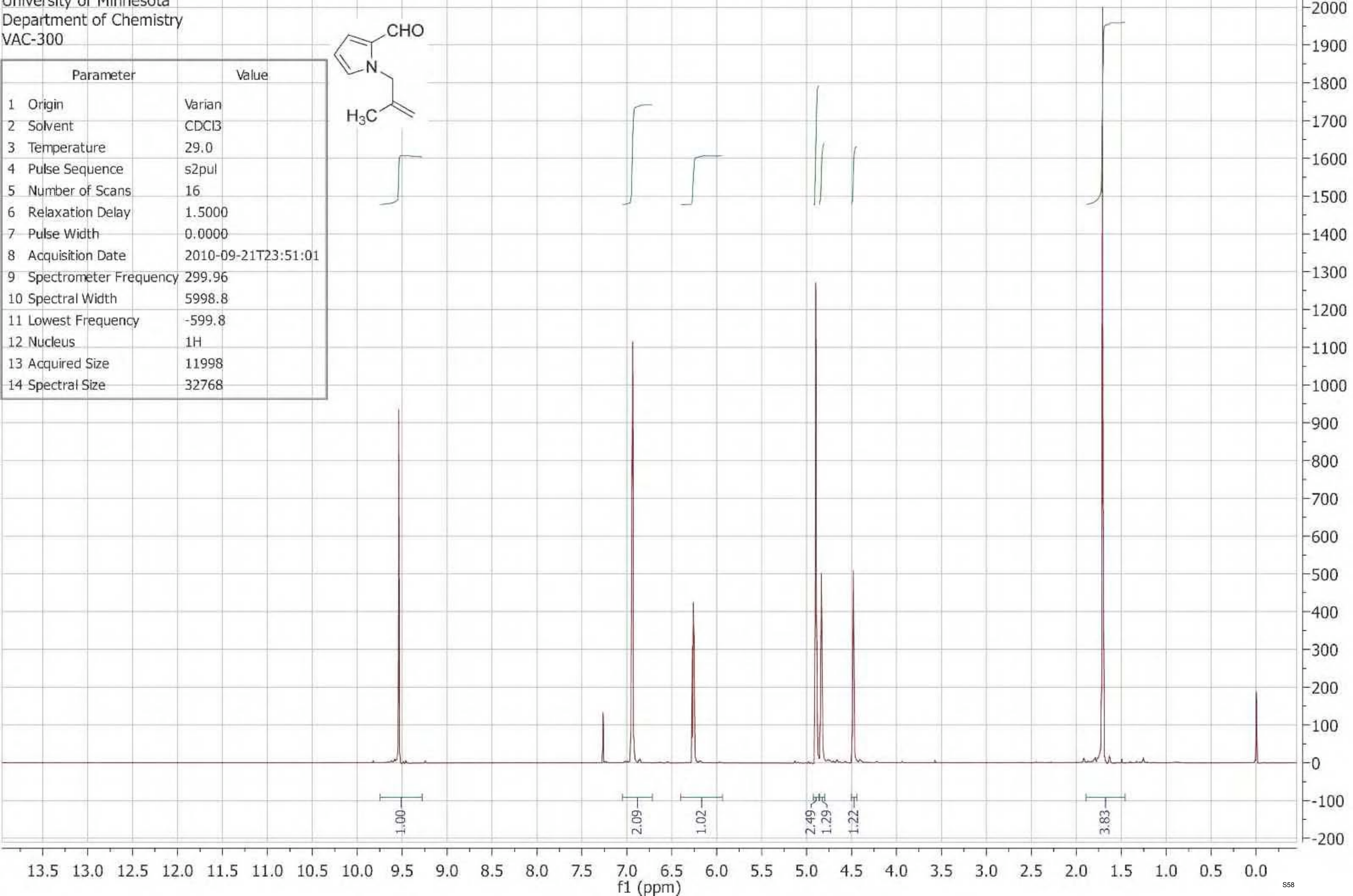
1m-H

Sud-pyr ald-c3

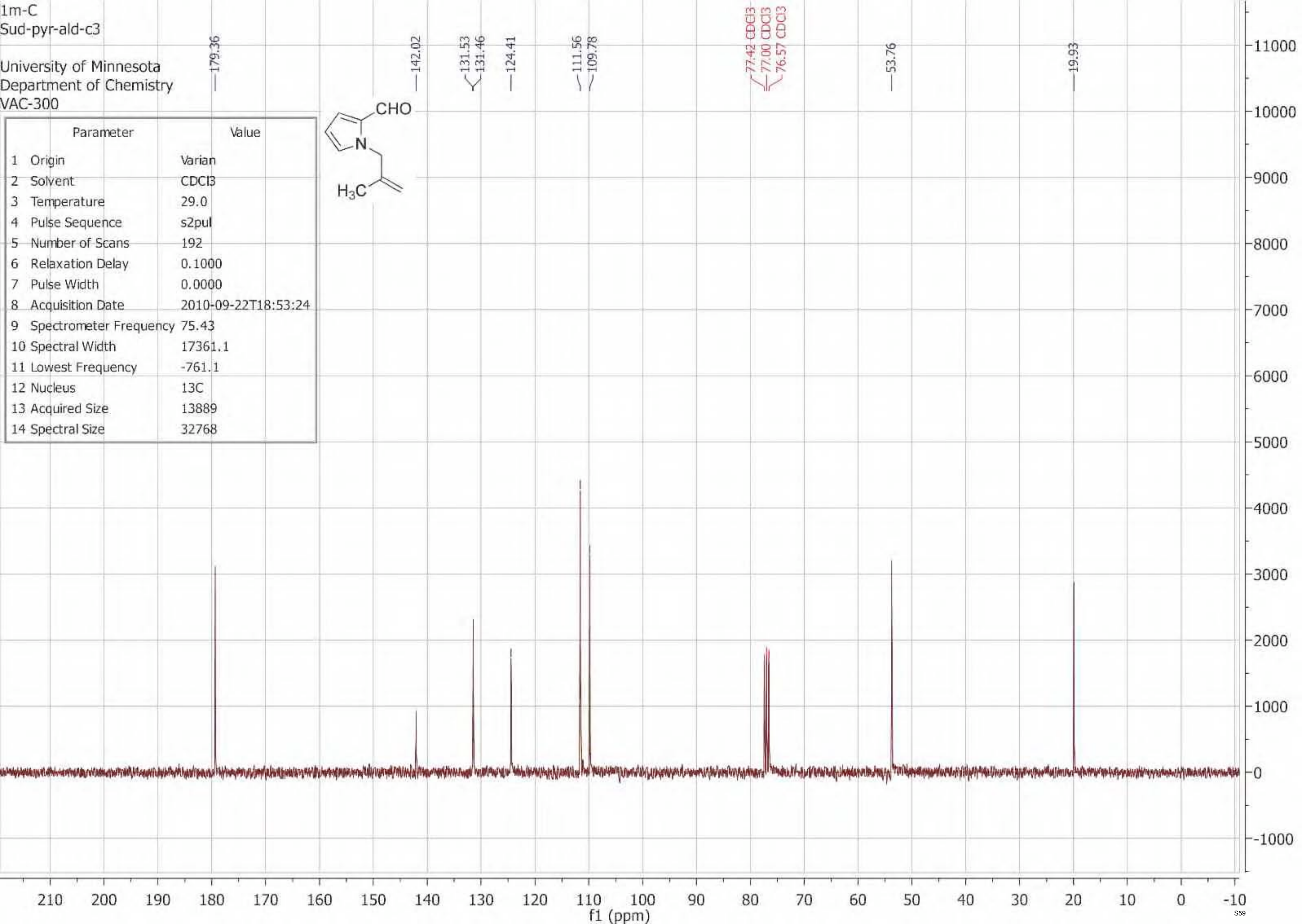
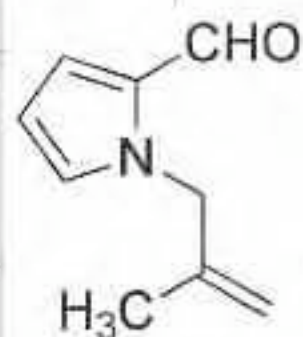
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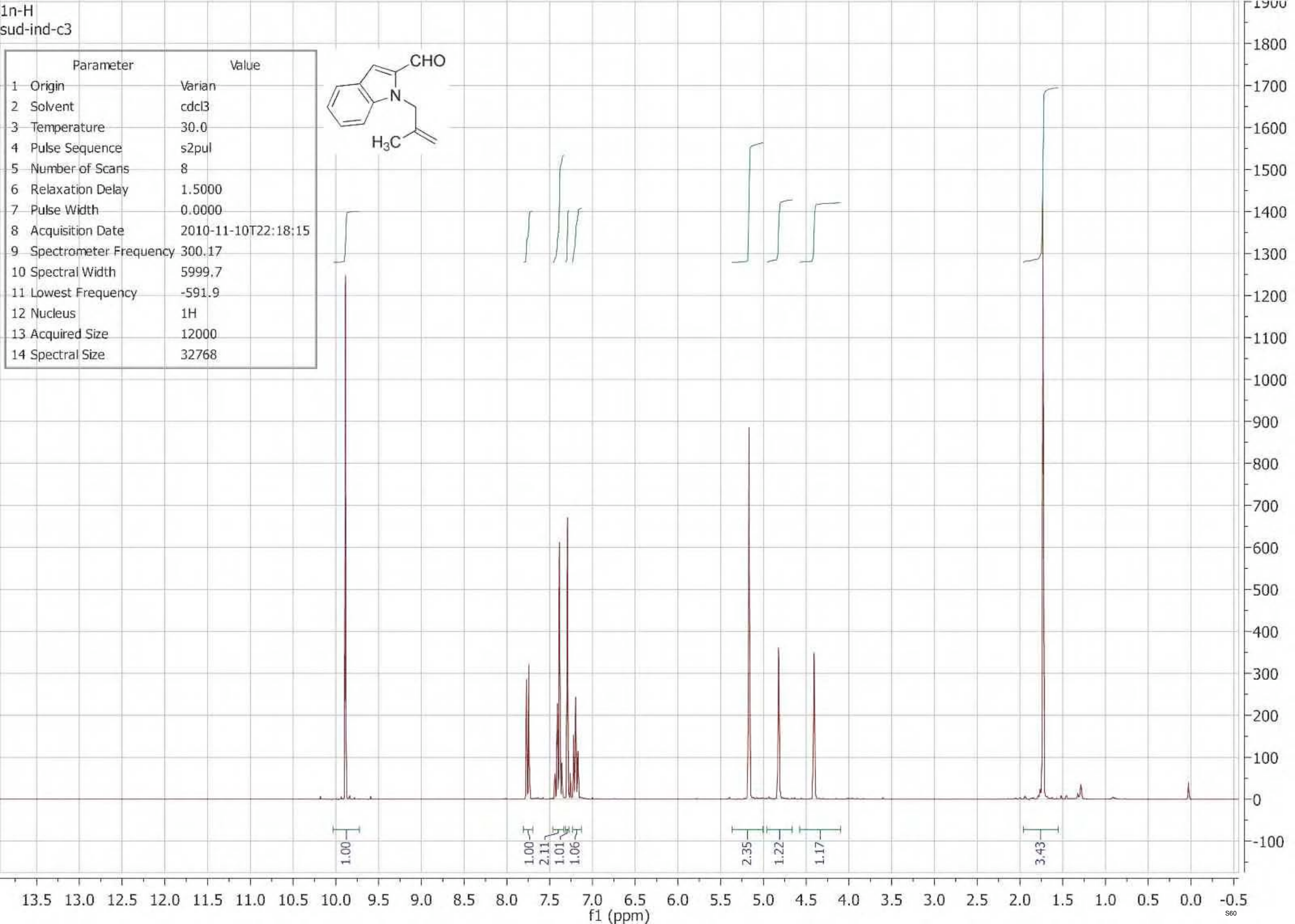
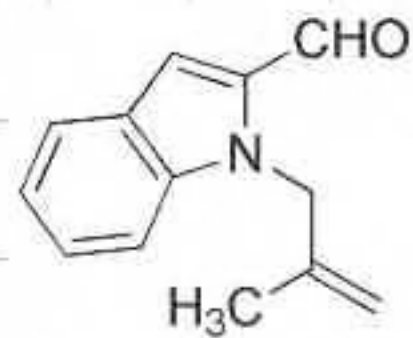
Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	16
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2010-09-21T23:51:01
9 Spectrometer Frequency	299.96
10 Spectral Width	5998.8
11 Lowest Frequency	-599.8
12 Nucleus	1H
13 Acquired Size	11998
14 Spectral Size	32768



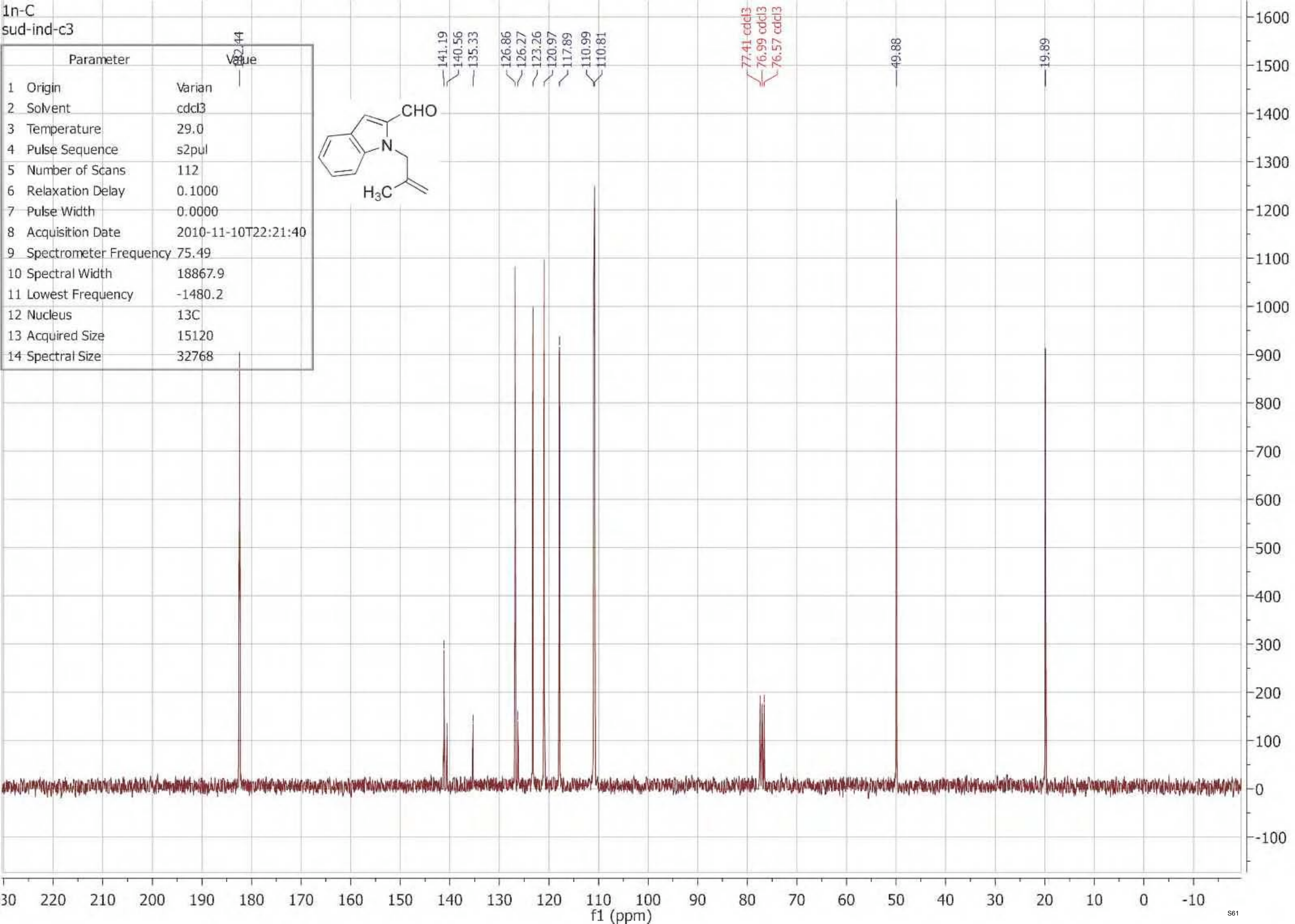
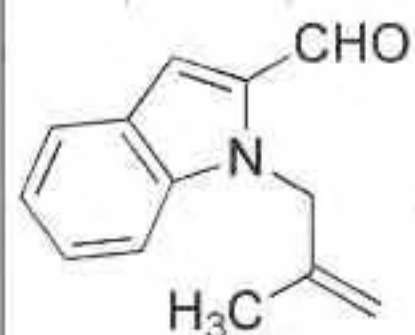
Parameter		Value
1	Origin	Varian
2	Solvent	CDCl3
3	Temperature	29.0
4	Pulse Sequence	s2pul
5	Number of Scans	192
6	Relaxation Delay	0.1000
7	Pulse Width	0.0000
8	Acquisition Date	2010-09-22T18:53:24
9	Spectrometer Frequency	75.43
10	Spectral Width	17361.1
11	Lowest Frequency	-761.1
12	Nucleus	13C
13	Acquired Size	13889
14	Spectral Size	32768



Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	30.0
4 Pulse Sequence	s2pul
5 Number of Scans	8
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2010-11-10T22:18:15
9 Spectrometer Frequency	300.17
10 Spectral Width	5999.7
11 Lowest Frequency	-591.9
12 Nucleus	1H
13 Acquired Size	12000
14 Spectral Size	32768

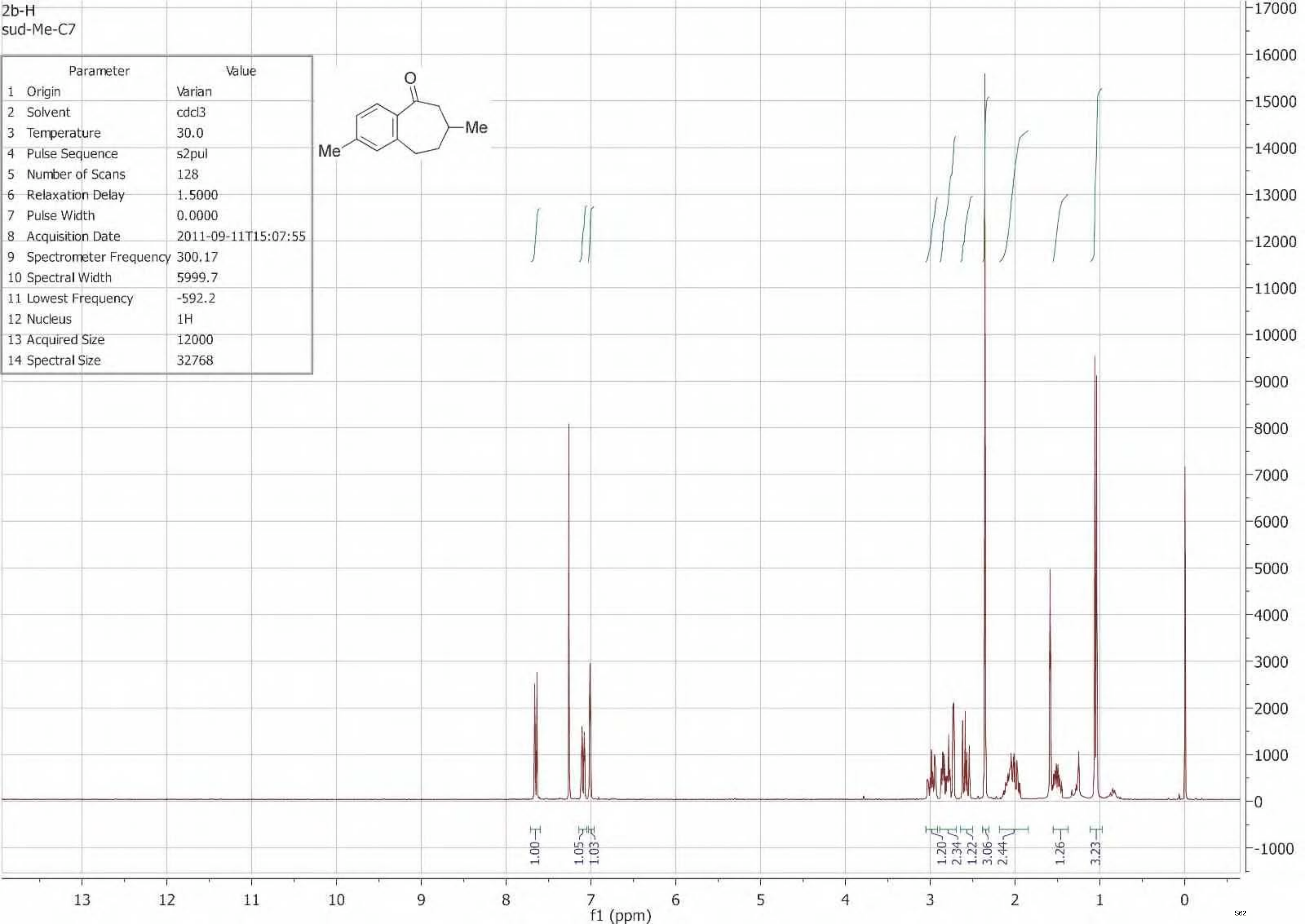
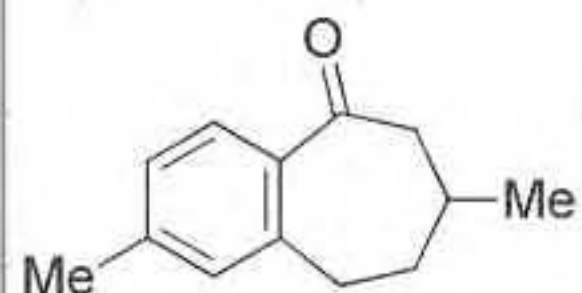


Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	112
6 Relaxation Delay	0.1000
7 Pulse Width	0.0000
8 Acquisition Date	2010-11-10T22:21:40
9 Spectrometer Frequency	75.49
10 Spectral Width	18867.9
11 Lowest Frequency	-1480.2
12 Nucleus	13C
13 Acquired Size	15120
14 Spectral Size	32768



2b-H
sud-Me-C7

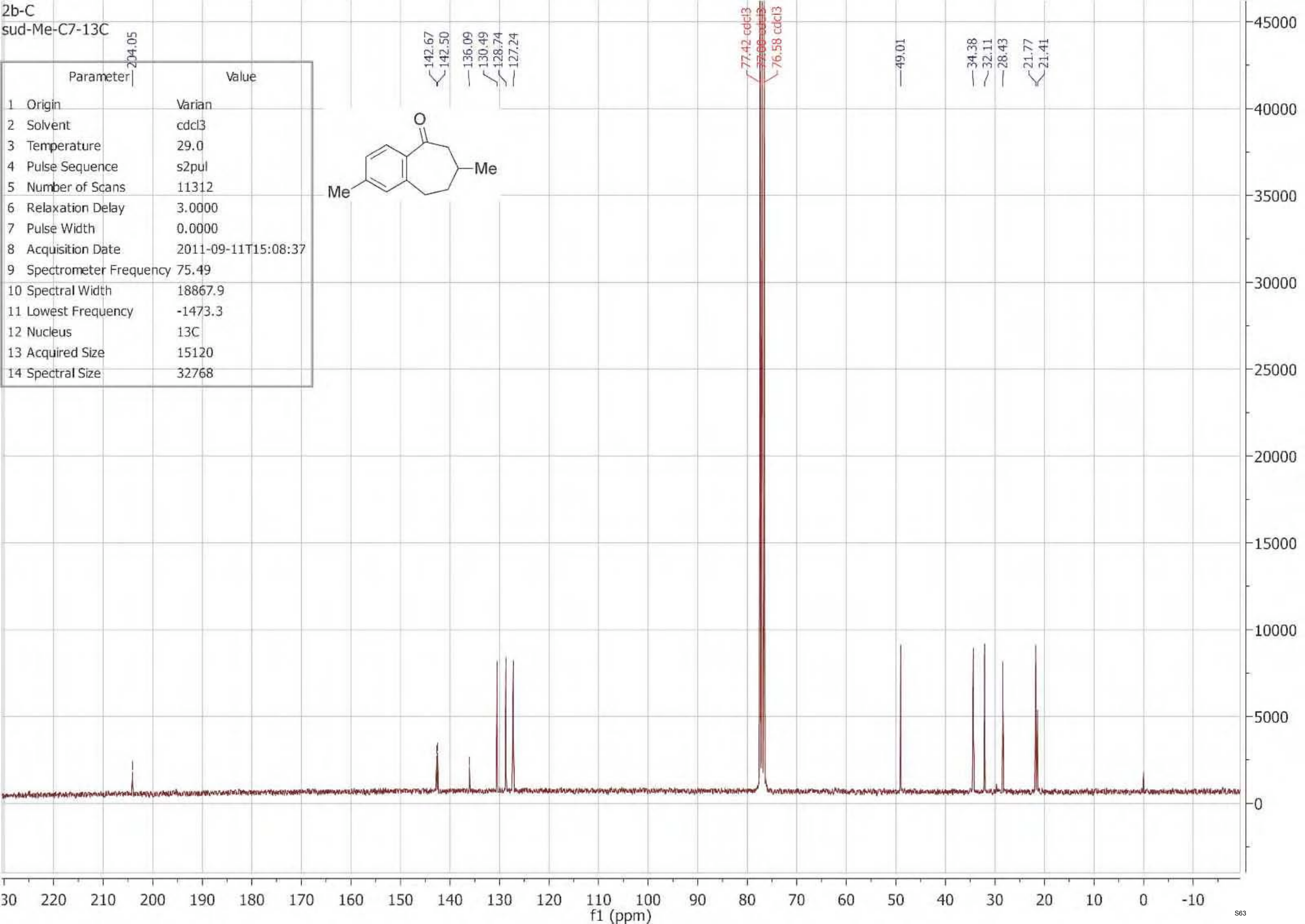
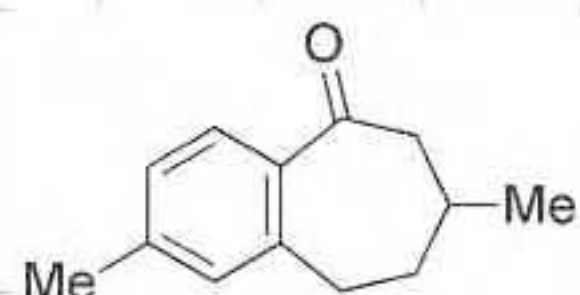
Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	30.0
4 Pulse Sequence	s2pul
5 Number of Scans	128
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2011-09-11T15:07:55
9 Spectrometer Frequency	300.17
10 Spectral Width	5999.7
11 Lowest Frequency	-592.2
12 Nucleus	1H
13 Acquired Size	12000
14 Spectral Size	32768



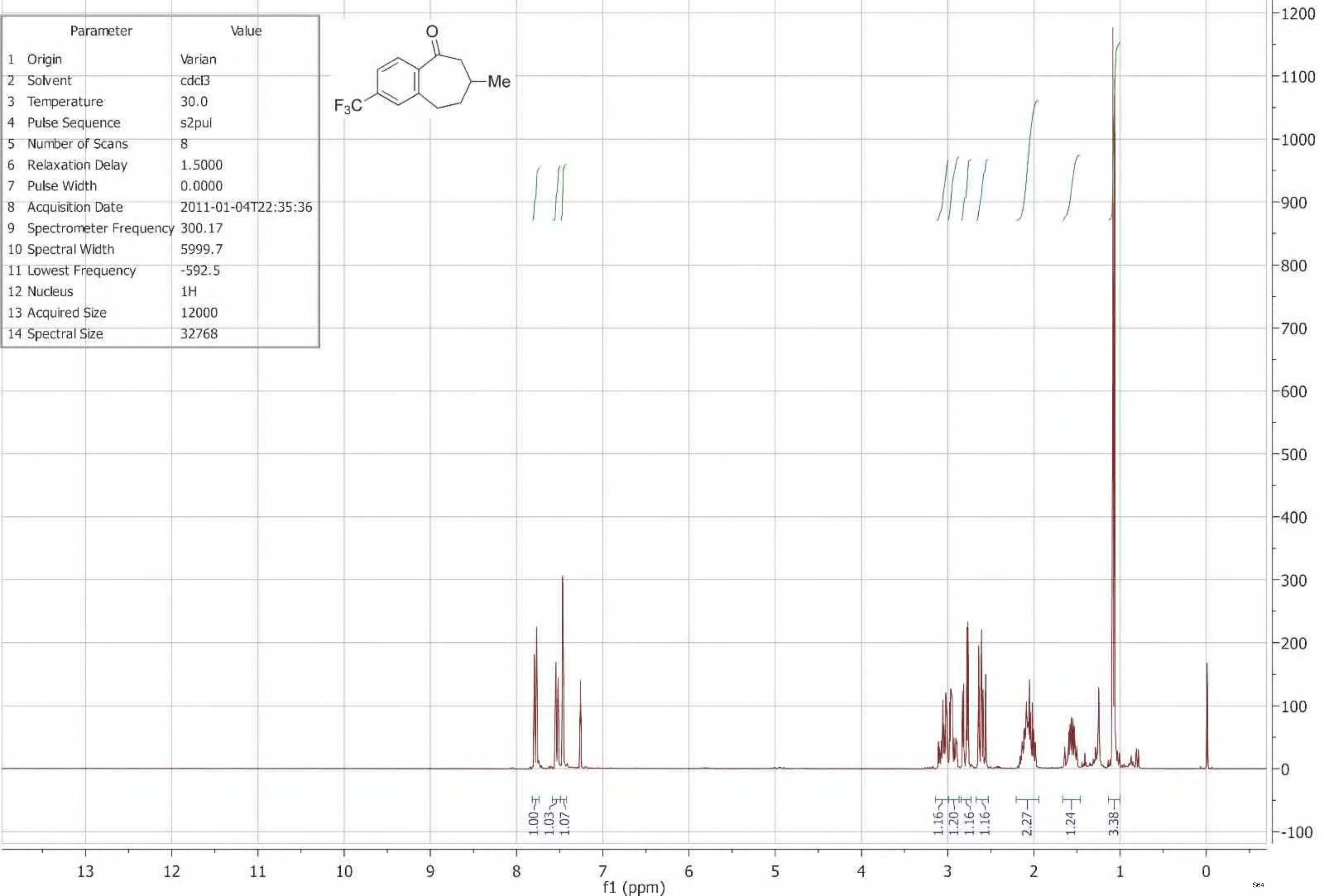
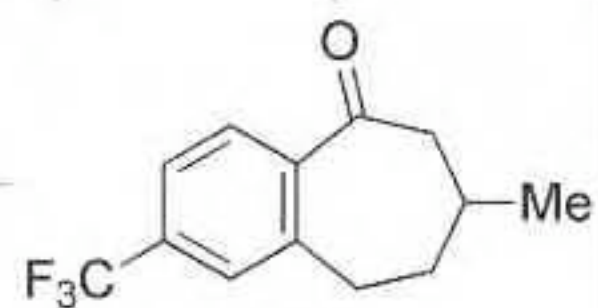
2b-C

sud-Me-C7-13C

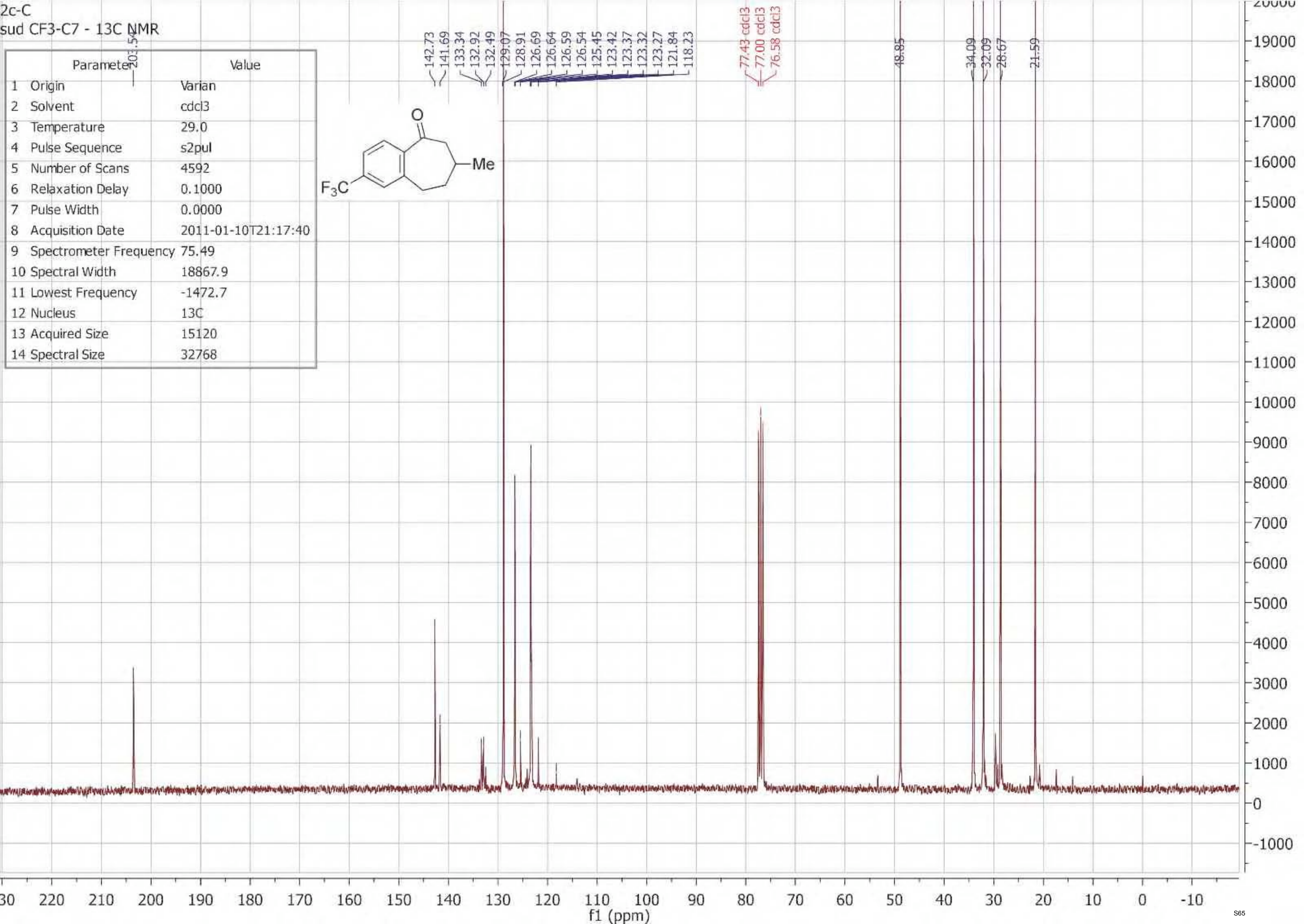
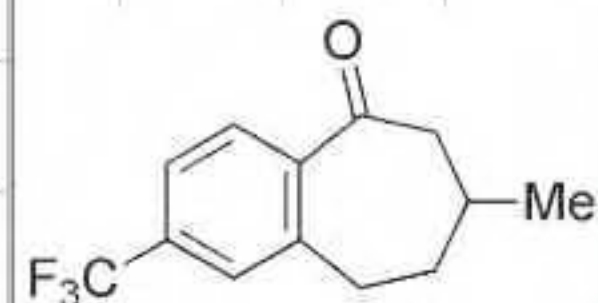
Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	11312
6 Relaxation Delay	3.0000
7 Pulse Width	0.0000
8 Acquisition Date	2011-09-11T15:08:37
9 Spectrometer Frequency	75.49
10 Spectral Width	18867.9
11 Lowest Frequency	-1473.3
12 Nucleus	13C
13 Acquired Size	15120
14 Spectral Size	32768



Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	30.0
4 Pulse Sequence	s2pul
5 Number of Scans	8
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2011-01-04T22:35:36
9 Spectrometer Frequency	300.17
10 Spectral Width	5999.7
11 Lowest Frequency	-592.5
12 Nucleus	1H
13 Acquired Size	12000
14 Spectral Size	32768



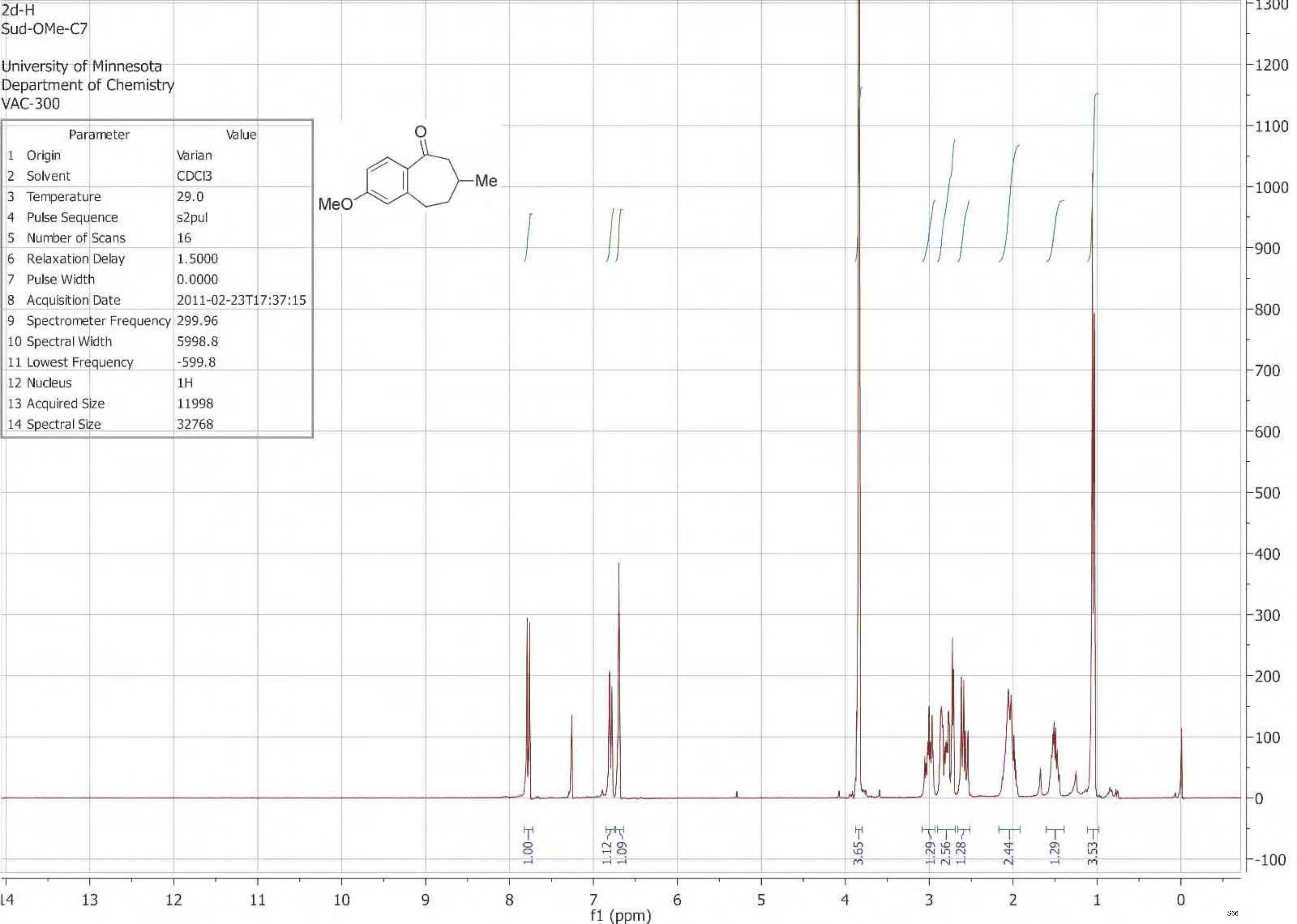
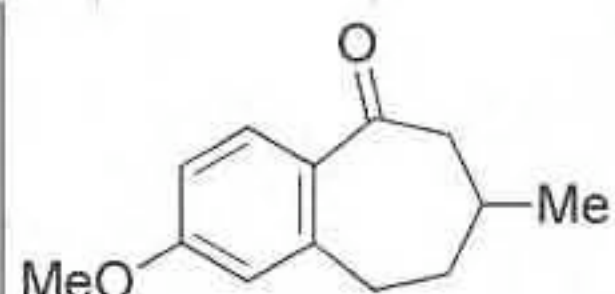
Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	4592
6 Relaxation Delay	0.1000
7 Pulse Width	0.0000
8 Acquisition Date	2011-01-10T21:17:40
9 Spectrometer Frequency	75.49
10 Spectral Width	18867.9
11 Lowest Frequency	-1472.7
12 Nucleus	13C
13 Acquired Size	15120
14 Spectral Size	32768



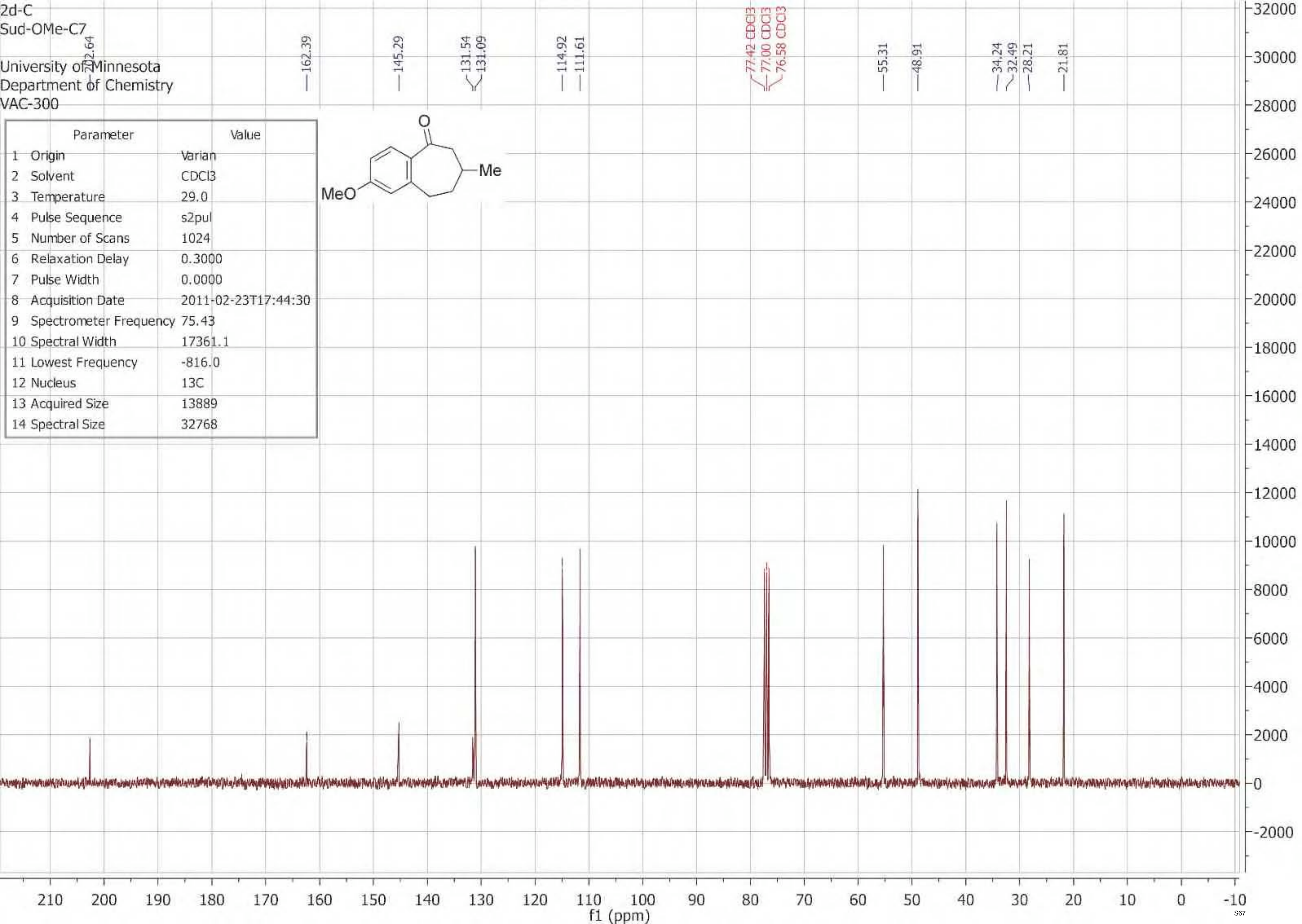
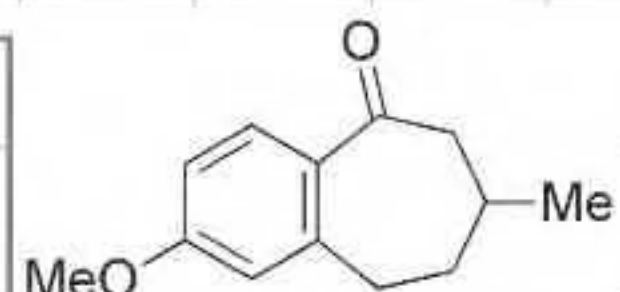
2d-H
Sud-OMe-C7

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VAC-300

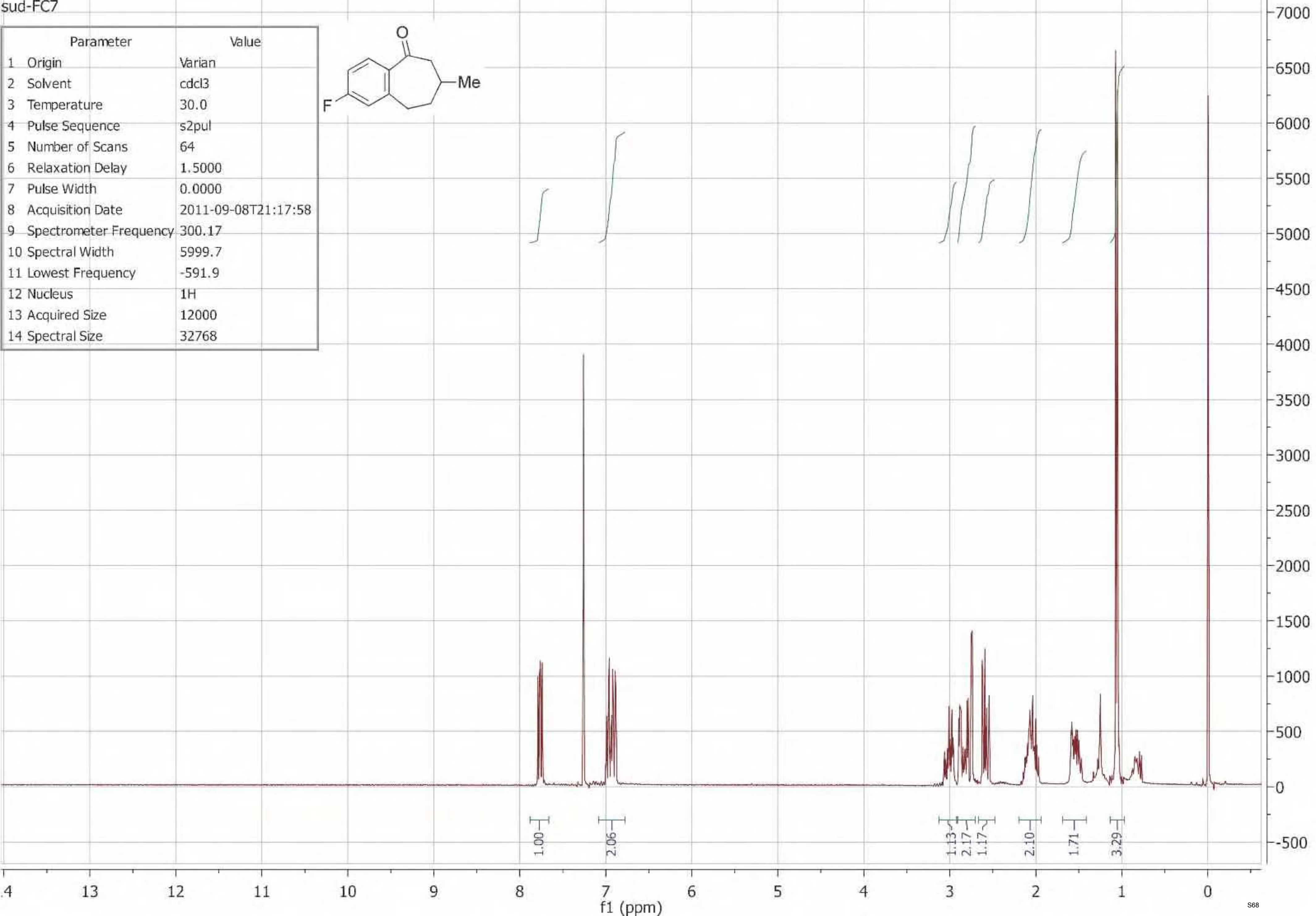
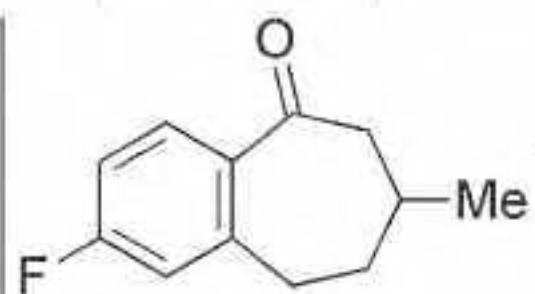
Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	16
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2011-02-23T17:37:15
9 Spectrometer Frequency	299.96
10 Spectral Width	5998.8
11 Lowest Frequency	-599.8
12 Nucleus	1H
13 Acquired Size	11998
14 Spectral Size	32768



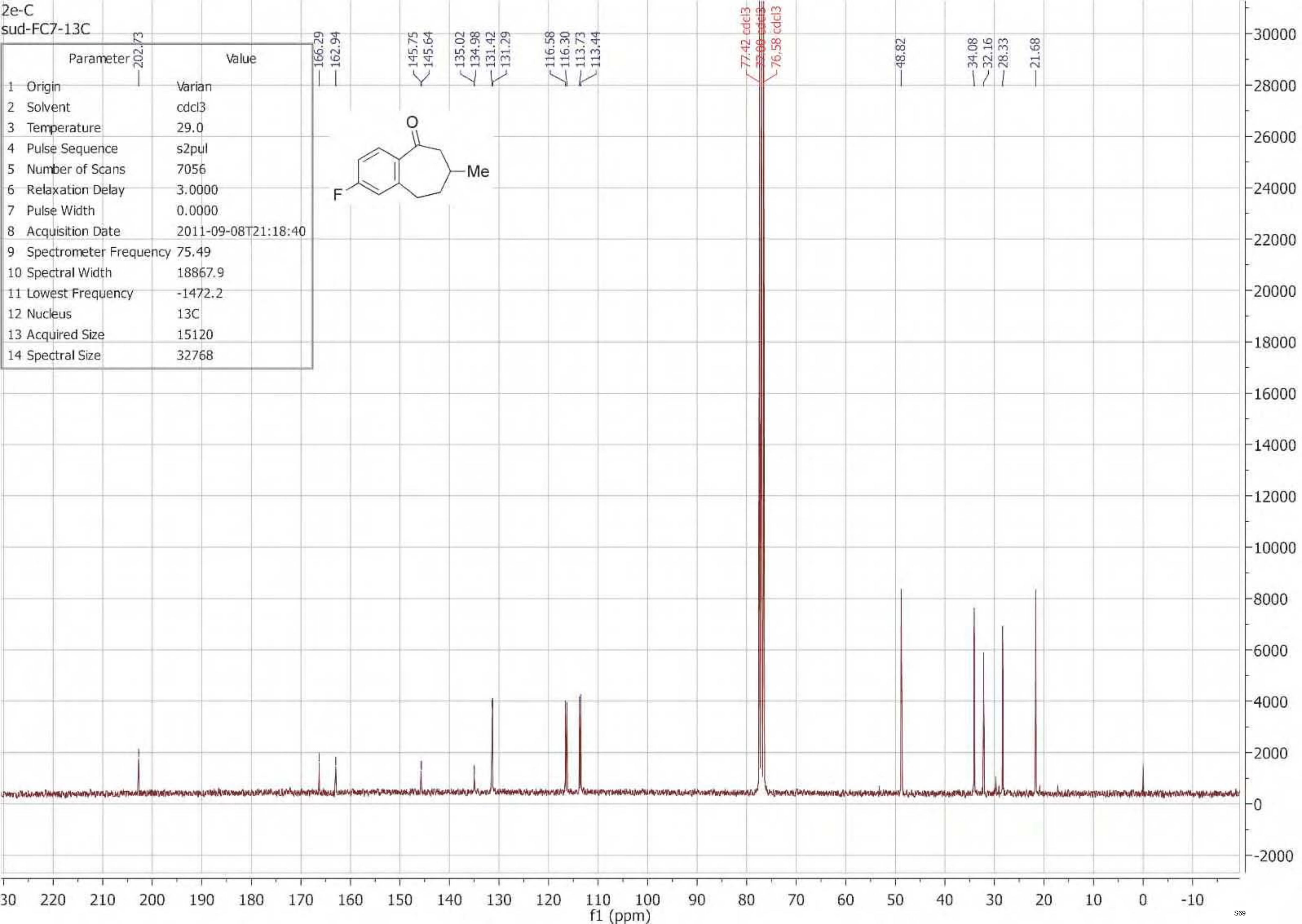
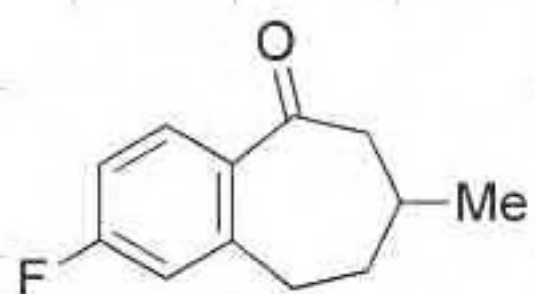
Parameter		Value
1	Origin	Varian
2	Solvent	CDCl3
3	Temperature	29.0
4	Pulse Sequence	s2pul
5	Number of Scans	1024
6	Relaxation Delay	0.3000
7	Pulse Width	0.0000
8	Acquisition Date	2011-02-23T17:44:30
9	Spectrometer Frequency	75.43
10	Spectral Width	17361.1
11	Lowest Frequency	-816.0
12	Nucleus	13C
13	Acquired Size	13889
14	Spectral Size	32768



Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	30.0
4 Pulse Sequence	s2pul
5 Number of Scans	64
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2011-09-08T21:17:58
9 Spectrometer Frequency	300.17
10 Spectral Width	5999.7
11 Lowest Frequency	-591.9
12 Nucleus	1H
13 Acquired Size	12000
14 Spectral Size	32768



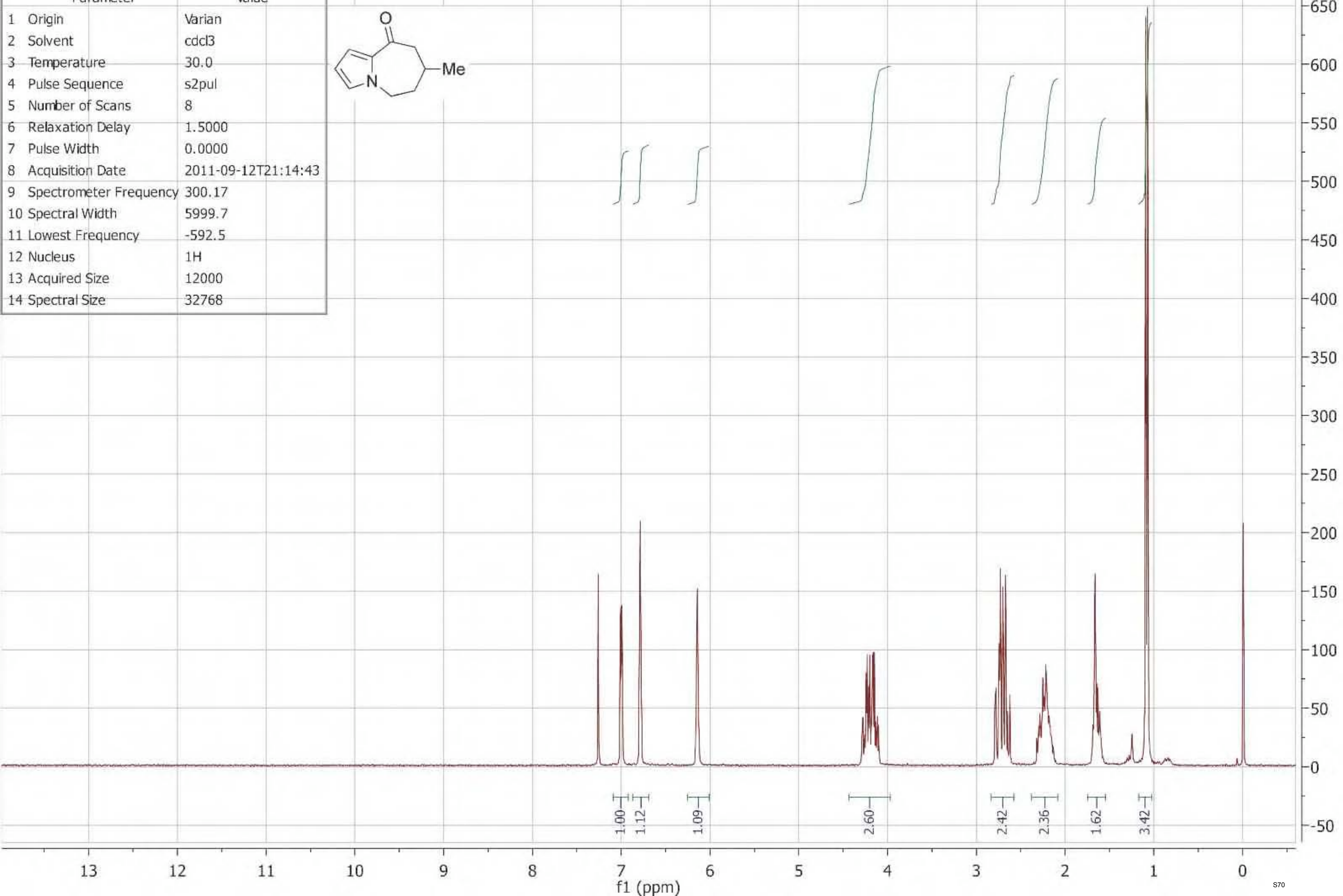
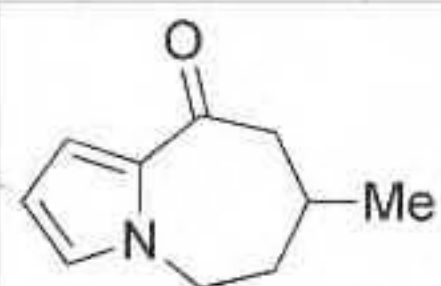
Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	7056
6 Relaxation Delay	3.0000
7 Pulse Width	0.0000
8 Acquisition Date	2011-09-08T21:18:40
9 Spectrometer Frequency	75.49
10 Spectral Width	18867.9
11 Lowest Frequency	-1472.2
12 Nucleus	13C
13 Acquired Size	15120
14 Spectral Size	32768

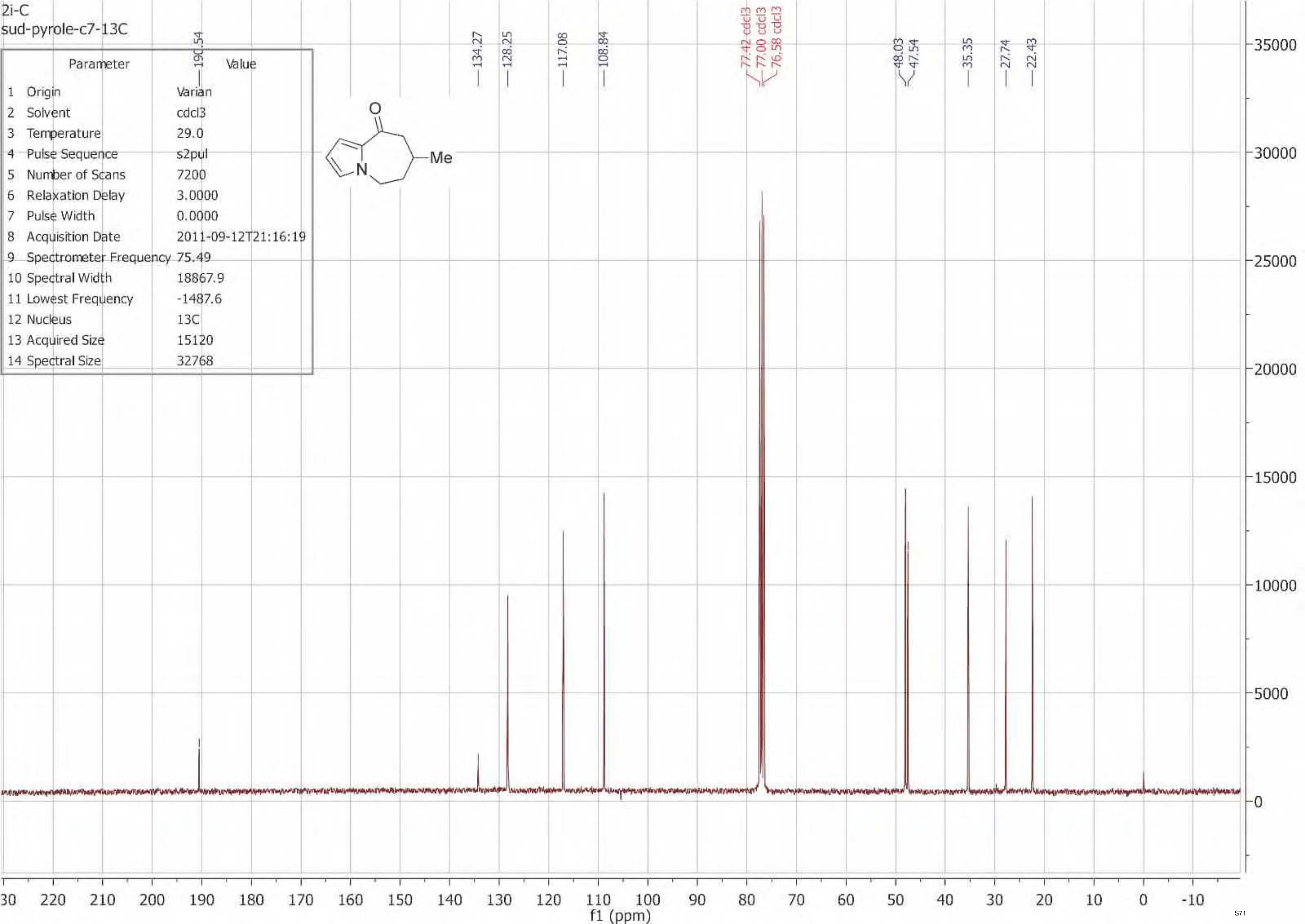


21-H

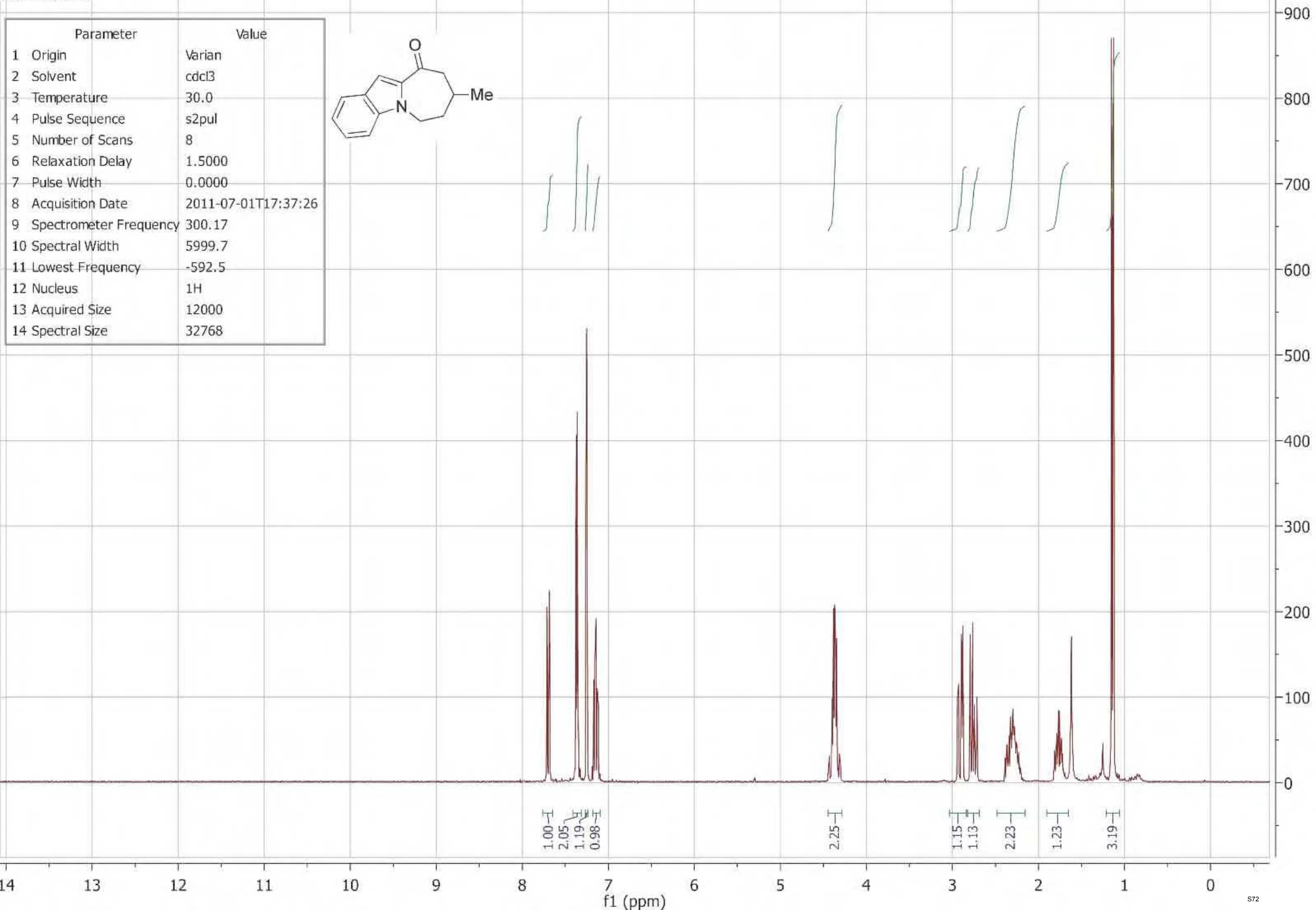
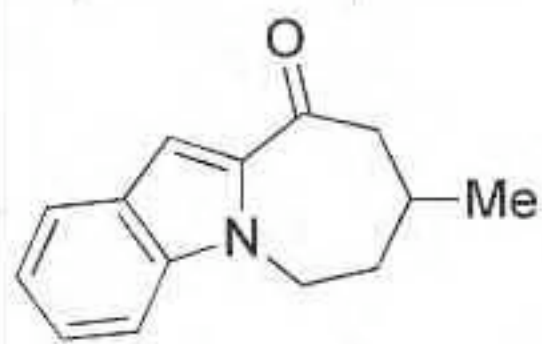
sud-pyrole C7

Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	30.0
4 Pulse Sequence	s2pul
5 Number of Scans	8
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2011-09-12T21:14:43
9 Spectrometer Frequency	300.17
10 Spectral Width	5999.7
11 Lowest Frequency	-592.5
12 Nucleus	1H
13 Acquired Size	12000
14 Spectral Size	32768

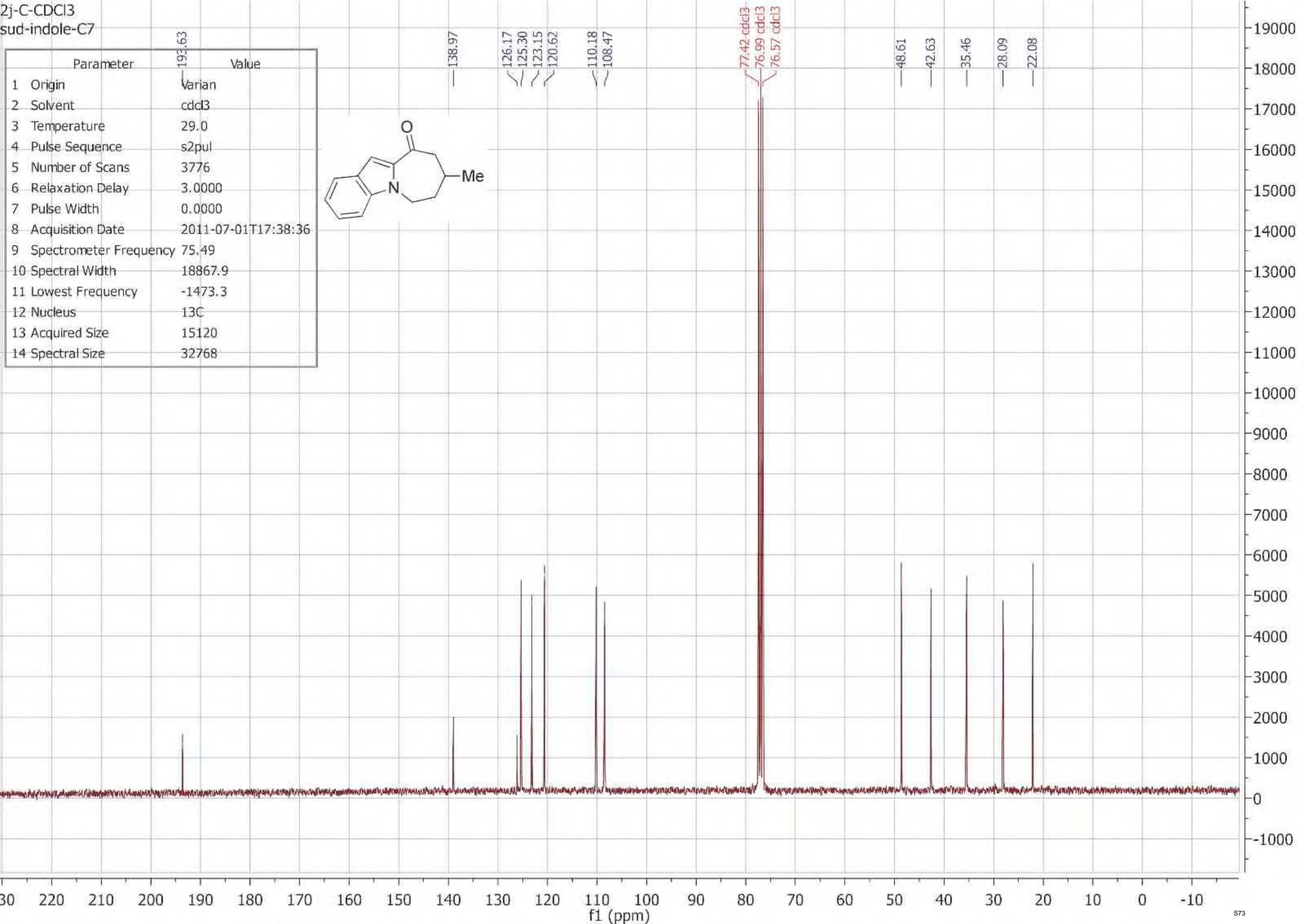
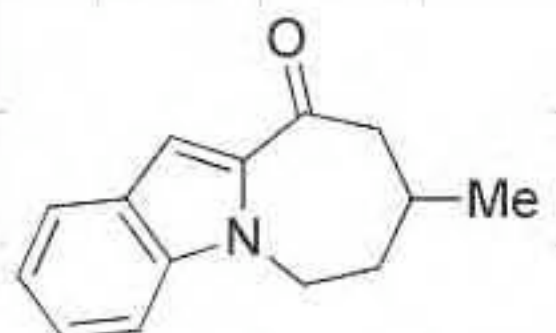




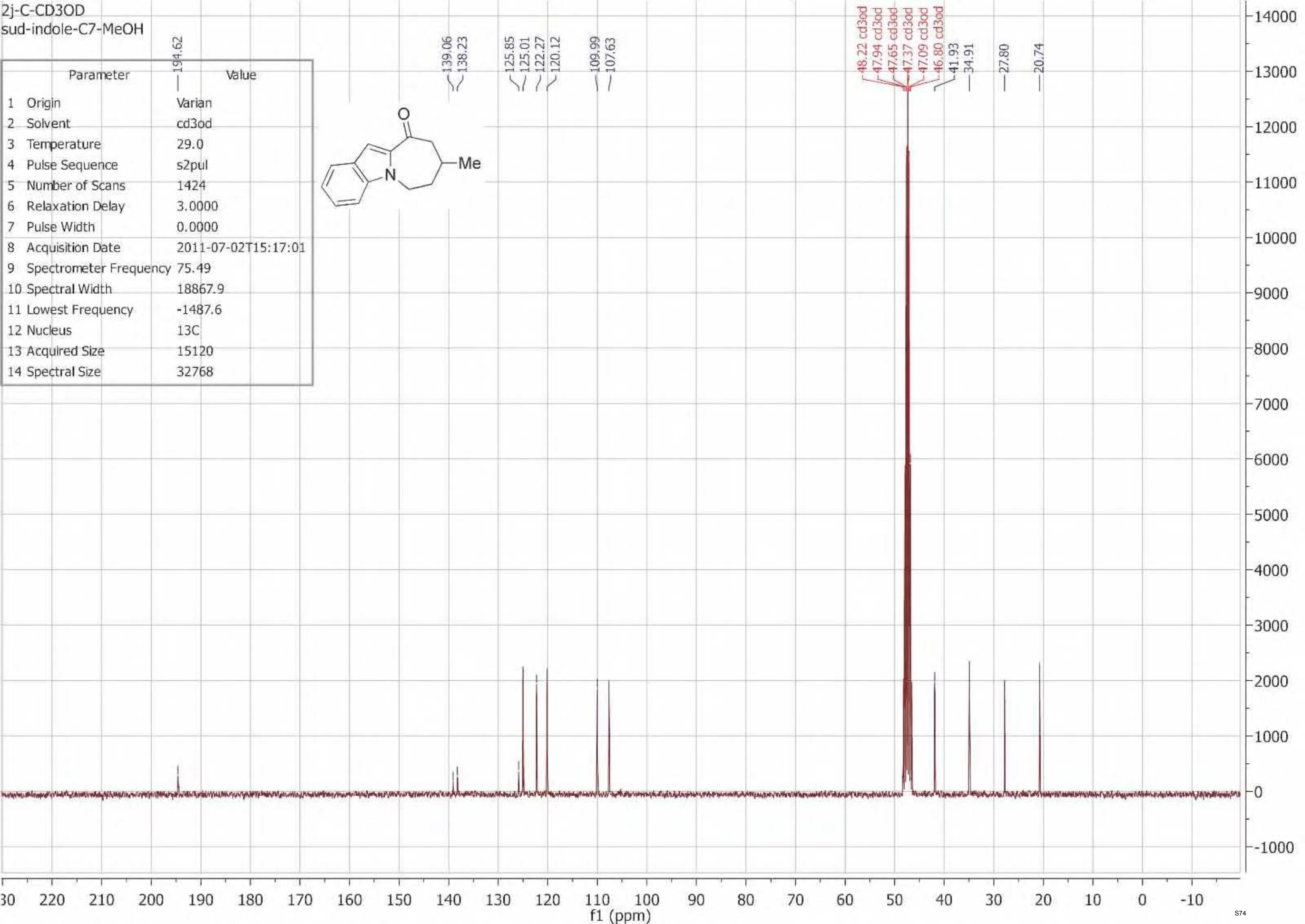
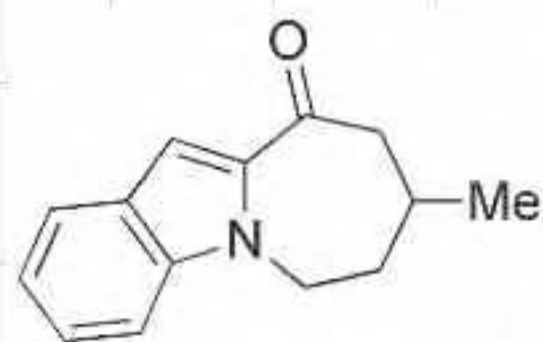
Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	30.0
4 Pulse Sequence	s2pul
5 Number of Scans	8
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2011-07-01T17:37:26
9 Spectrometer Frequency	300.17
10 Spectral Width	5999.7
11 Lowest Frequency	-592.5
12 Nucleus	1H
13 Acquired Size	12000
14 Spectral Size	32768



Parameter	Value
1 Origin	Varian
2 Solvent	cdcl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	3776
6 Relaxation Delay	3.0000
7 Pulse Width	0.0000
8 Acquisition Date	2011-07-01T17:38:36
9 Spectrometer Frequency	75.49
10 Spectral Width	18867.9
11 Lowest Frequency	-1473.3
12 Nucleus	13C
13 Acquired Size	15120
14 Spectral Size	32768



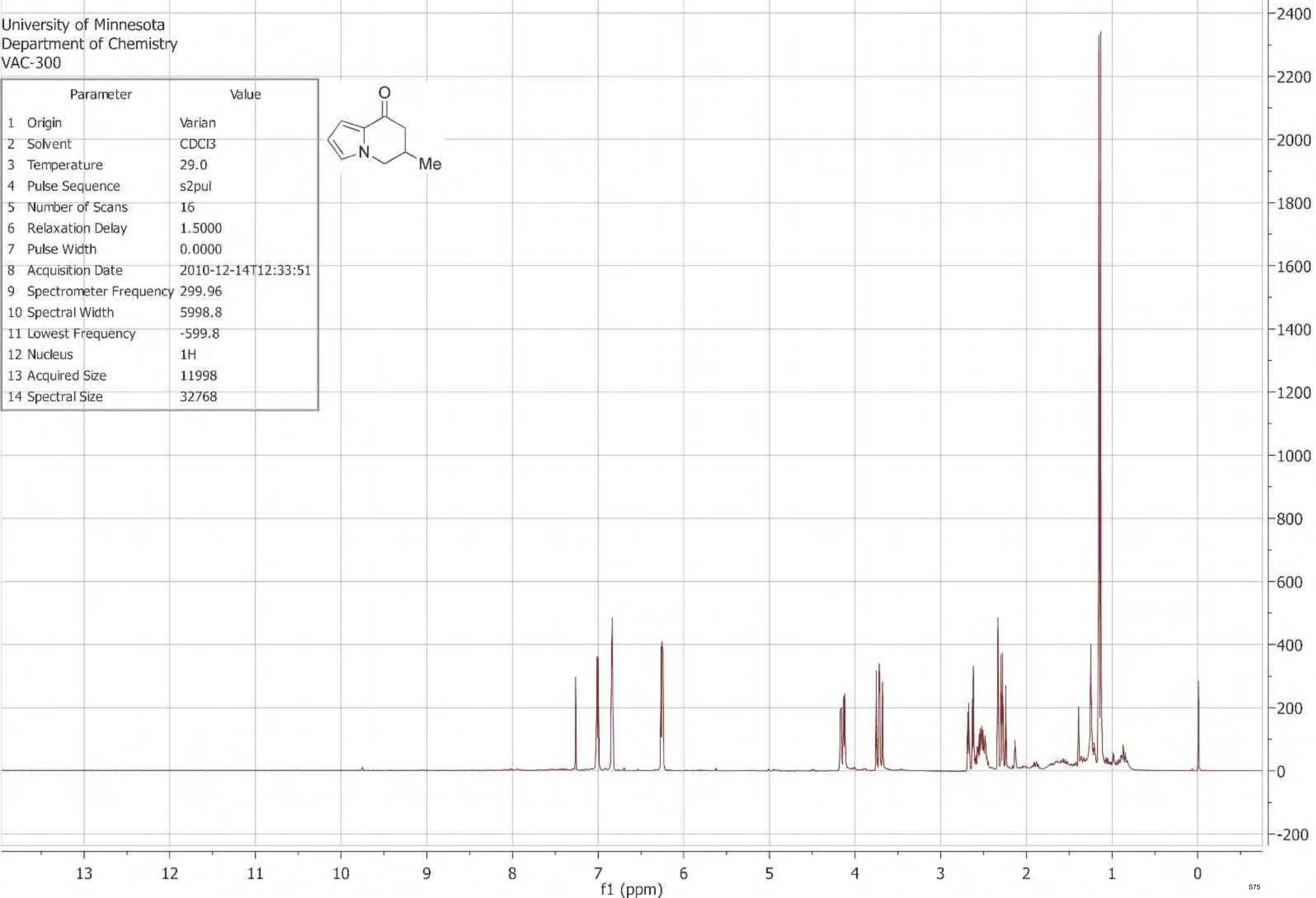
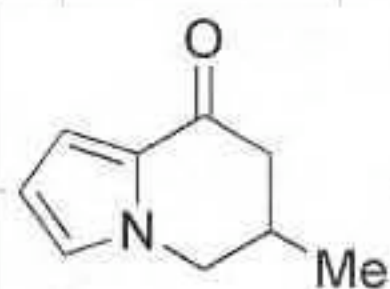
Parameter	Value
1 Origin	Varian
2 Solvent	cd3od
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	1424
6 Relaxation Delay	3.0000
7 Pulse Width	0.0000
8 Acquisition Date	2011-07-02T15:17:01
9 Spectrometer Frequency	75.49
10 Spectral Width	18867.9
11 Lowest Frequency	-1487.6
12 Nucleus	13C
13 Acquired Size	15120
14 Spectral Size	32768



2m-H
sud-pyrol-c6

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Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	16
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2010-12-14T12:33:51
9 Spectrometer Frequency	299.96
10 Spectral Width	5998.8
11 Lowest Frequency	-599.8
12 Nucleus	1H
13 Acquired Size	11998
14 Spectral Size	32768

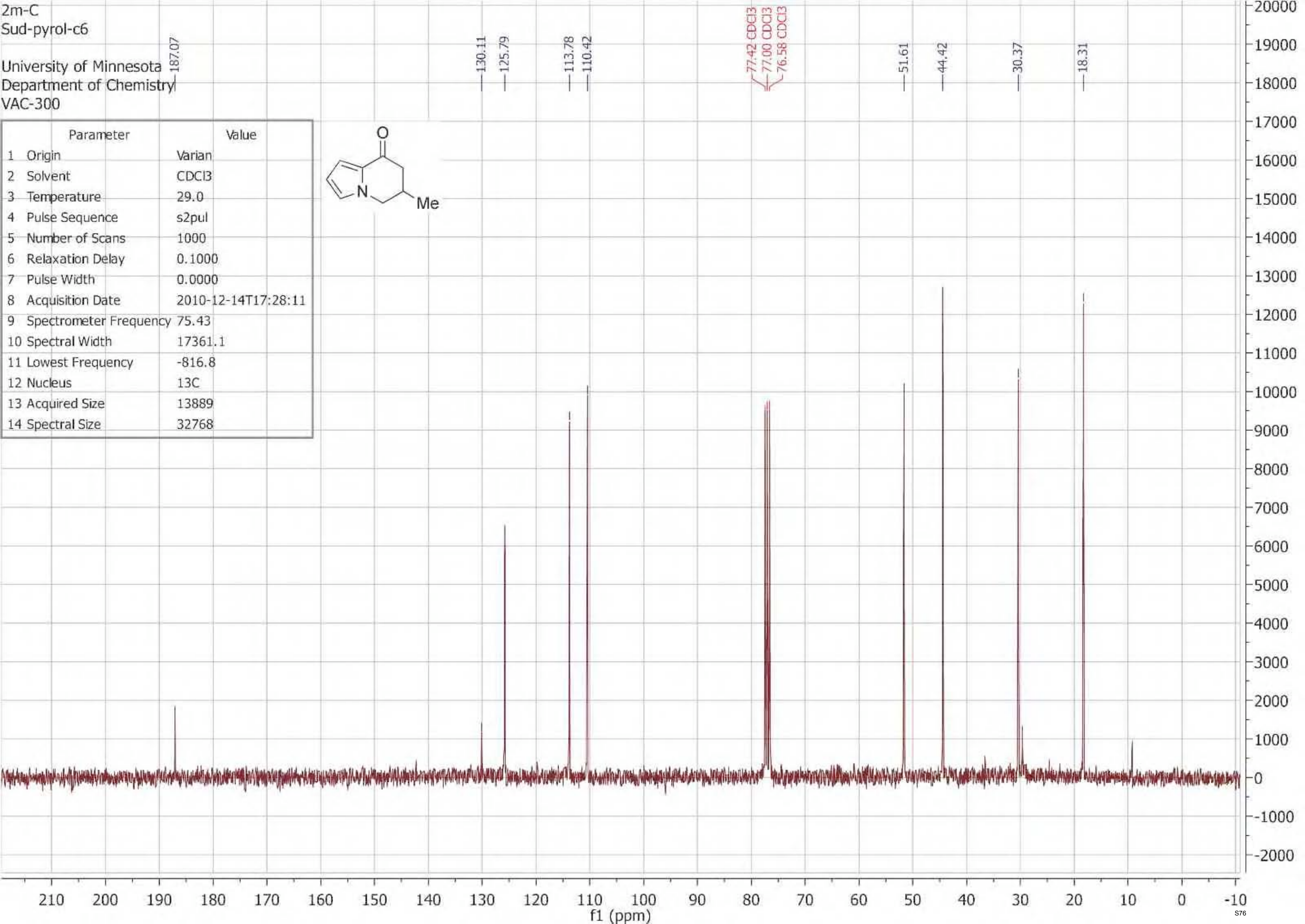
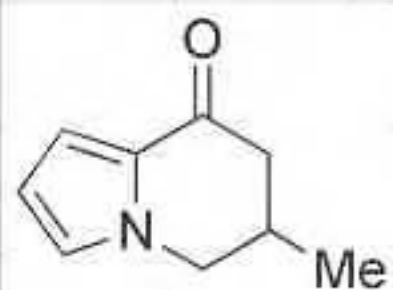


2m-C

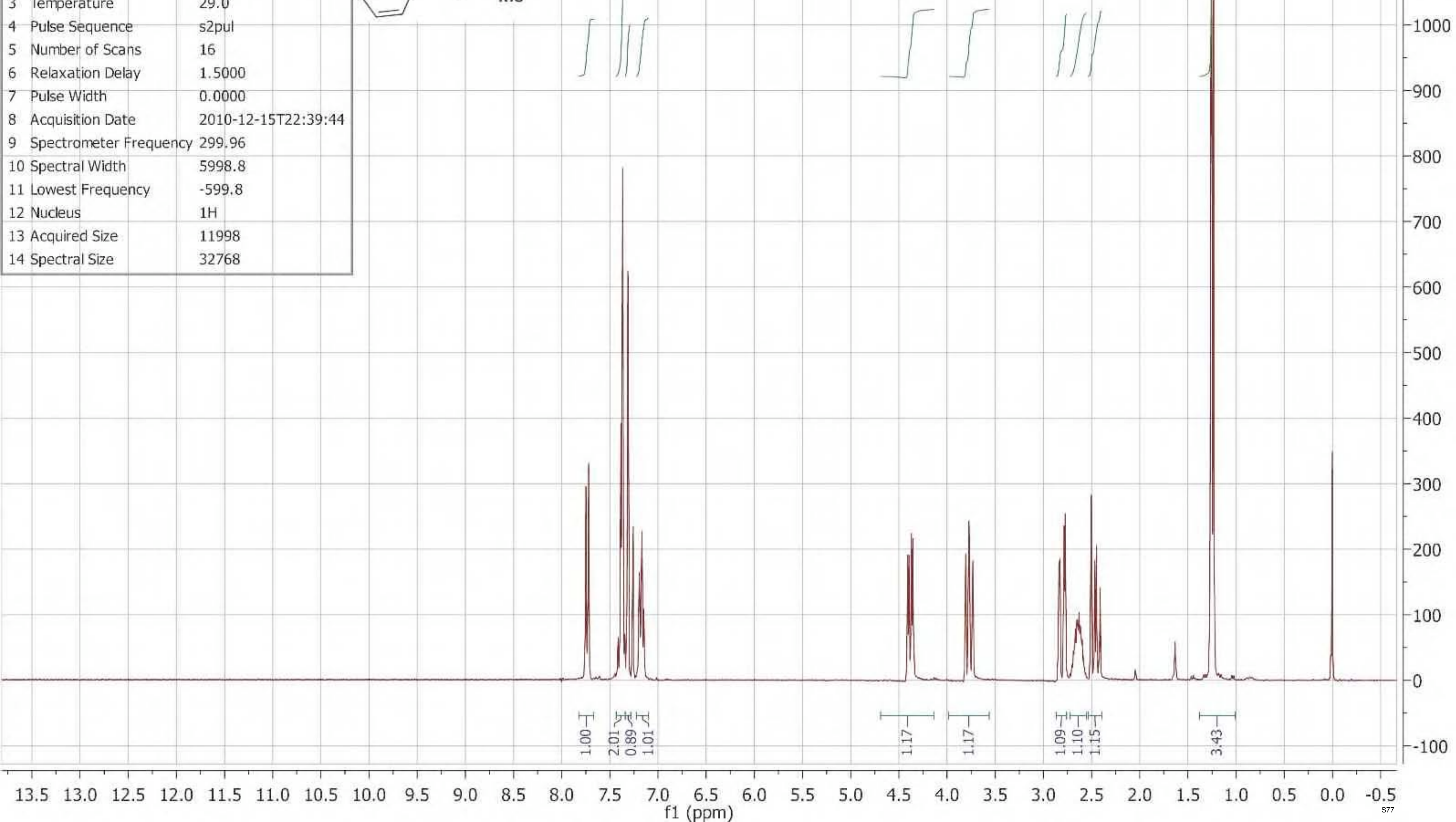
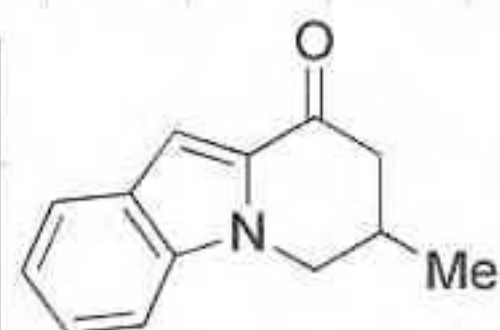
Sud-pyrol-c6

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VAC-300

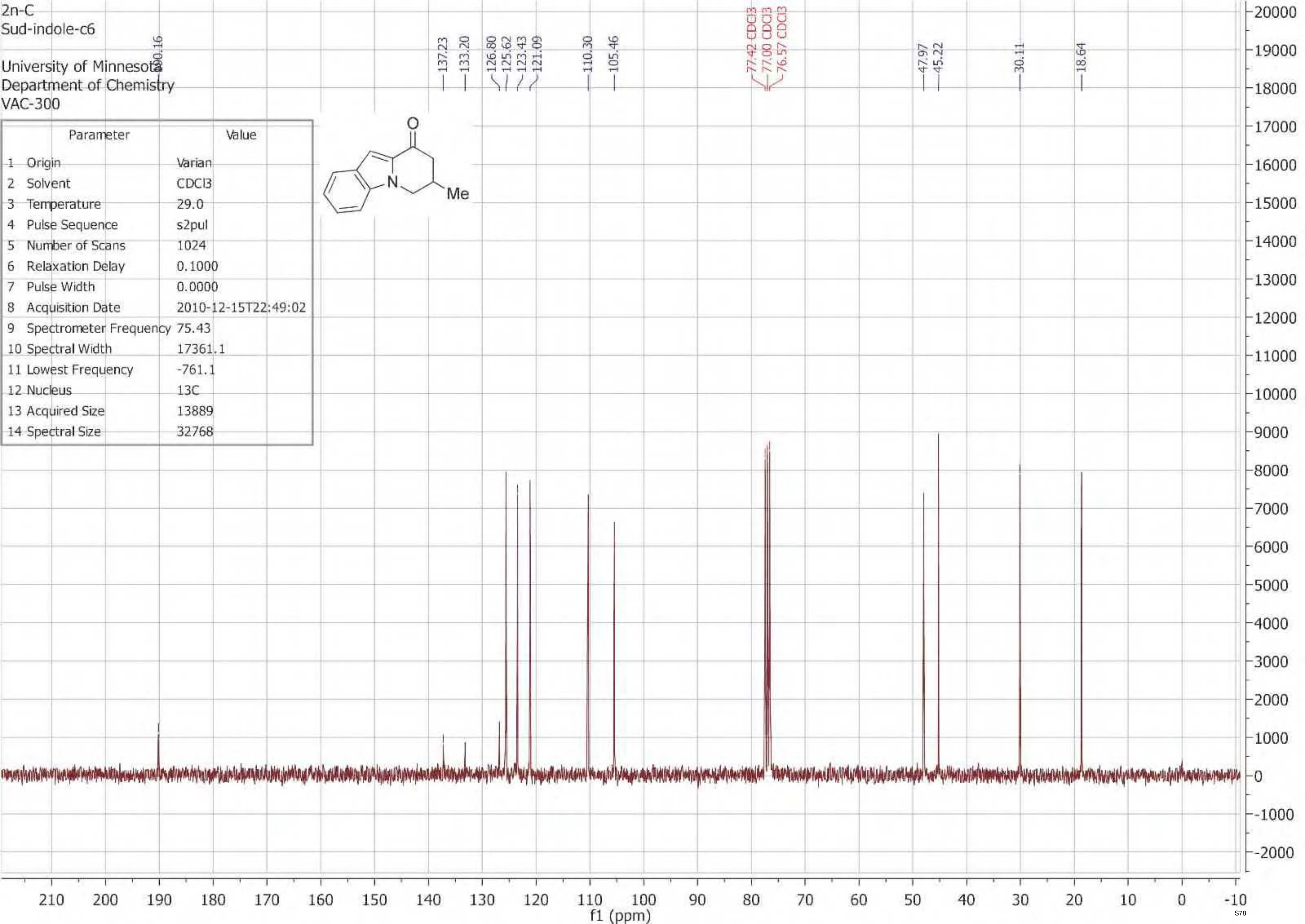
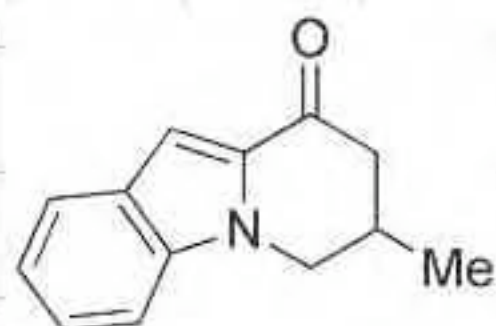
Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	1000
6 Relaxation Delay	0.1000
7 Pulse Width	0.0000
8 Acquisition Date	2010-12-14T17:28:11
9 Spectrometer Frequency	75.43
10 Spectral Width	17361.1
11 Lowest Frequency	-816.8
12 Nucleus	13C
13 Acquired Size	13889
14 Spectral Size	32768



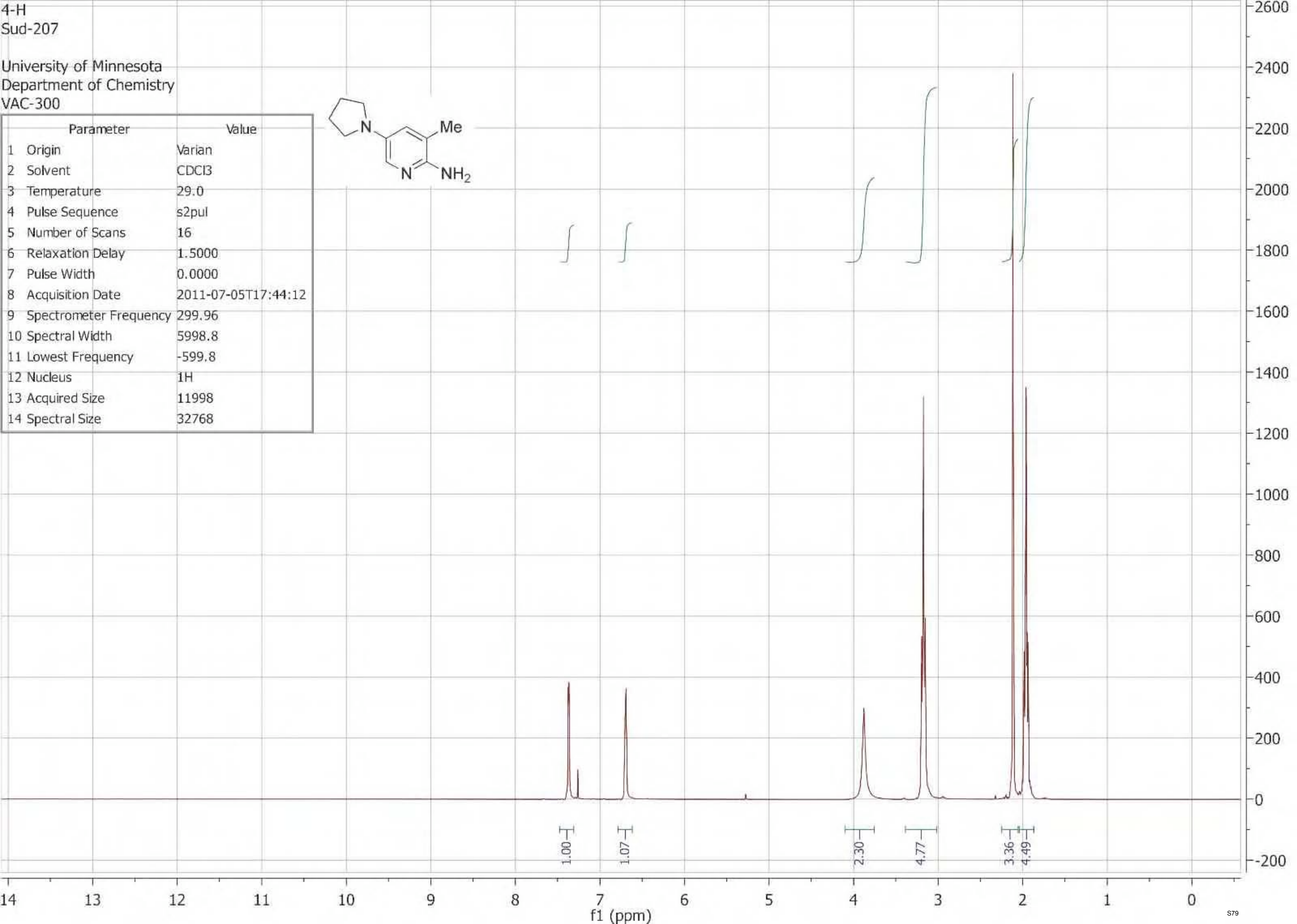
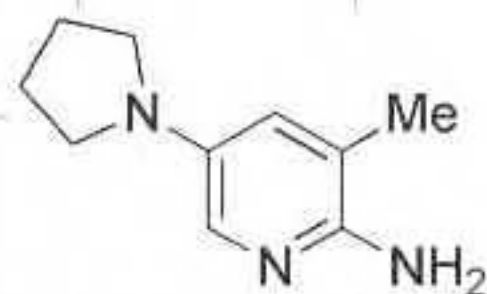
Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	16
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2010-12-15T22:39:44
9 Spectrometer Frequency	299.96
10 Spectral Width	5998.8
11 Lowest Frequency	-599.8
12 Nucleus	1H
13 Acquired Size	11998
14 Spectral Size	32768



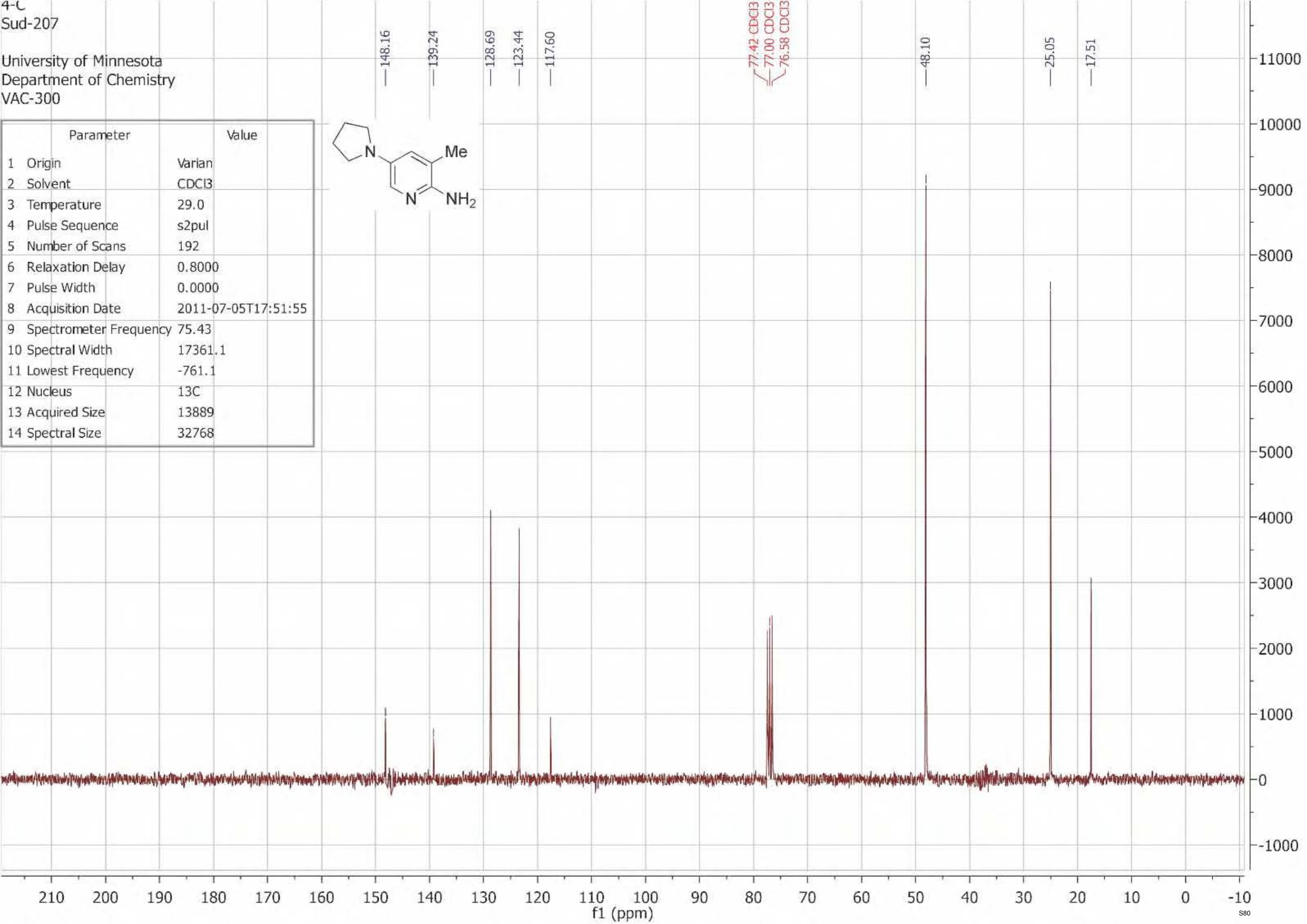
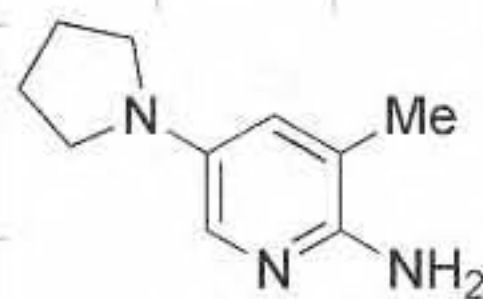
Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	1024
6 Relaxation Delay	0.1000
7 Pulse Width	0.0000
8 Acquisition Date	2010-12-15T22:49:02
9 Spectrometer Frequency	75.43
10 Spectral Width	17361.1
11 Lowest Frequency	-761.1
12 Nucleus	13C
13 Acquired Size	13889
14 Spectral Size	32768



Parameter	Value
1 Origin	Varian
2 Solvent	CDCl3
3 Temperature	29.0
4 Pulse Sequence	s2pul
5 Number of Scans	16
6 Relaxation Delay	1.5000
7 Pulse Width	0.0000
8 Acquisition Date	2011-07-05T17:44:12
9 Spectrometer Frequency	299.96
10 Spectral Width	5998.8
11 Lowest Frequency	-599.8
12 Nucleus	¹ H
13 Acquired Size	11998
14 Spectral Size	32768



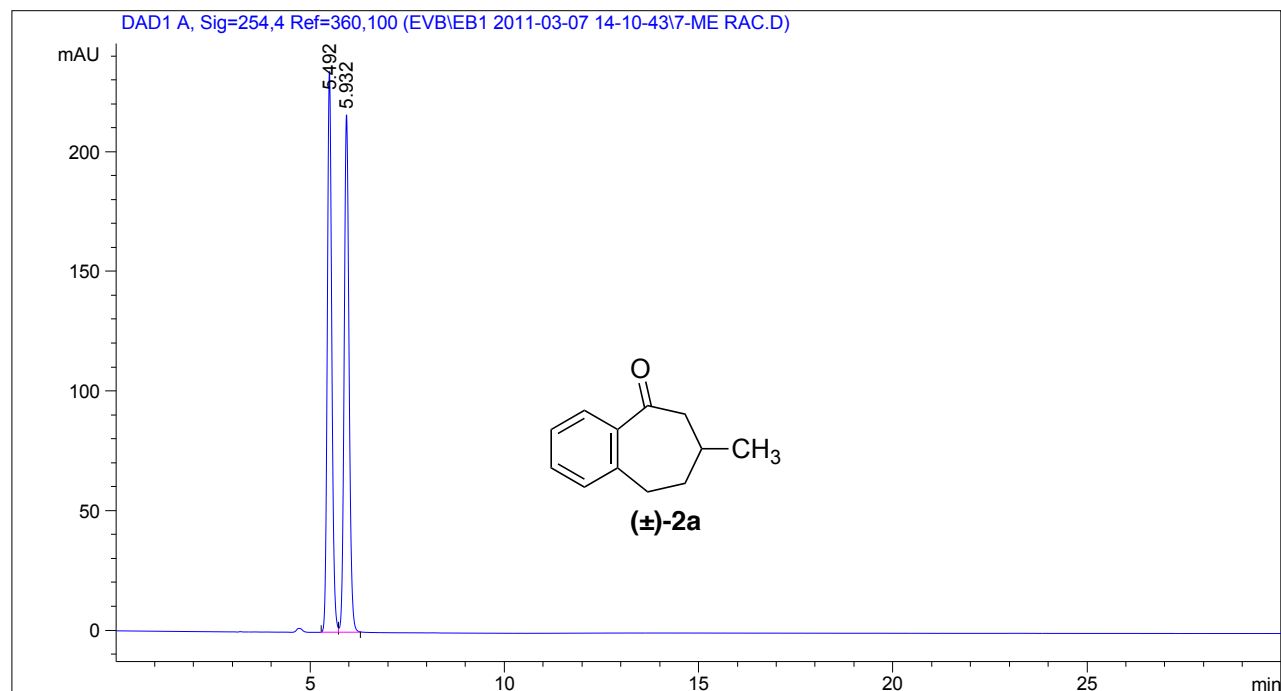
Parameter		Value
1	Origin	Varian
2	Solvent	CDCl3
3	Temperature	29.0
4	Pulse Sequence	s2pul
5	Number of Scans	192
6	Relaxation Delay	0.8000
7	Pulse Width	0.0000
8	Acquisition Date	2011-07-05T17:51:55
9	Spectrometer Frequency	75.43
10	Spectral Width	17361.1
11	Lowest Frequency	-761.1
12	Nucleus	13C
13	Acquired Size	13889
14	Spectral Size	32768



Sample Name: 7-Me rac

```

=====
Acq. Operator   : RTA                      Seq. Line :    3
Acq. Instrument : hplc                    Location  : Vial 3
Injection Date  : 3/7/2011 2:19:17 PM      Inj       :    1
                                           Inj Volume: 5 µl
Different Inj Volume from Sequence !      Actual Inj Volume : 1 µl
Acq. Method     : C:\CHEM32\1\DATA\EVB\EB1 2011-03-07 14-10-43\5IPA-30.M
Last changed    : 4/20/2010 2:43:53 PM by Rout
Analysis Method : C:\CHEM32\1\METHODS\15IPA-50.M
Last changed    : 3/7/2011 4:03:21 PM by ESG
                  (modified after loading)
Method Info     : 15% IPA
    
```



Area Percent Report

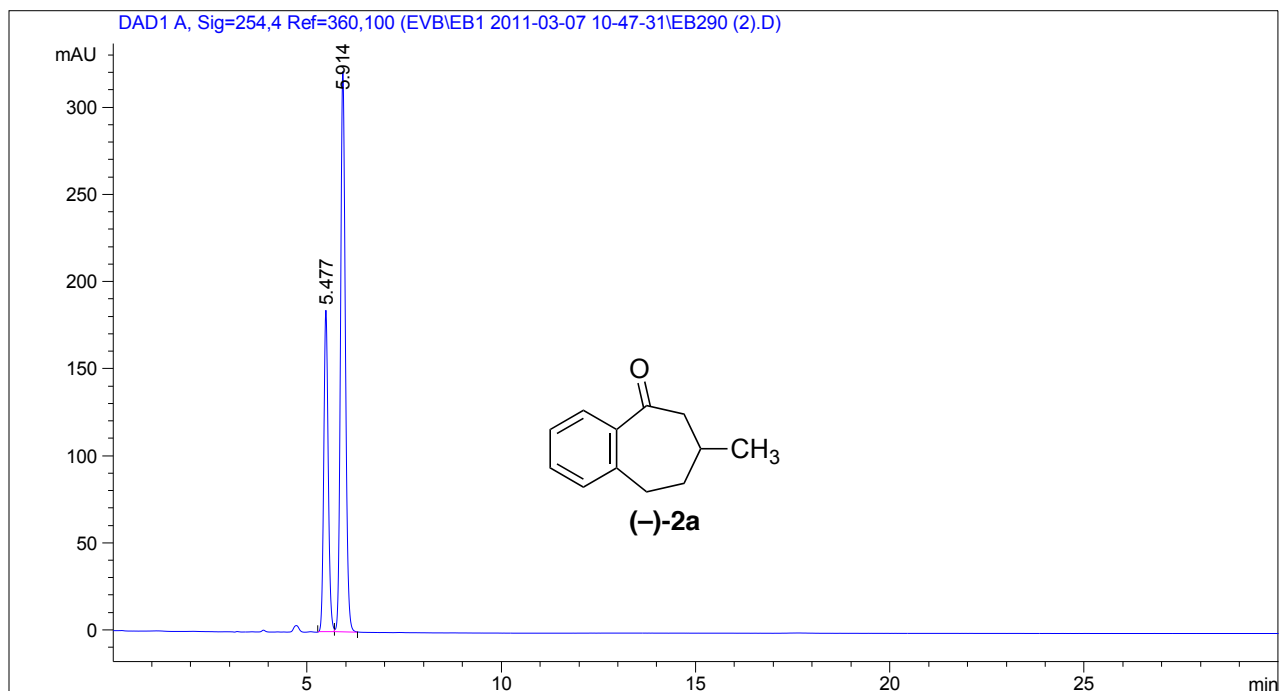
```

Sorted By      :      Signal
Multiplier:    :      1.0000
Dilution:      :      1.0000
Use Multiplier & Dilution Factor with ISTDs
    
```

Signal 1: DAD1 A, Sig=254,4 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.492	BV	0.1236	1883.55212	234.74620	49.9103
2	5.932	VB	0.1338	1890.31897	216.56218	50.0897

```
=====
Acq. Operator   : RTA                      Seq. Line :    3
Acq. Instrument : hplc                    Location  : Vial 3
Injection Date  : 3/7/2011 10:56:00 AM      Inj       :    1
                                           Inj Volume: 5 µl
Different Inj Volume from Sequence !      Actual Inj Volume : 2 µl
Acq. Method     : C:\CHEM32\1\DATA\EVB\EB1 2011-03-07 10-47-31\5IPA-30.M
Last changed    : 4/20/2010 2:43:53 PM by Rout
Analysis Method : C:\CHEM32\1\METHODS\15IPA-50.M
Last changed    : 3/3/2011 1:31:57 PM by ESG
                  (modified after loading)
Method Info     : 15% IPA
=====
```



```
=====
Area Percent Report
=====
```

```
Sorted By      :      Signal
Multiplier:    :      1.0000
Dilution:      :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 A, Sig=254,4 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.477	BV	0.1231	1473.53772	184.73135	34.3840
2	5.914	VB	0.1339	2812.00146	322.10196	65.6160